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**The Environmental Justice Implications of the Planning Policy  
and Practice of Flood Risk Management in New Zealand**

A thesis  
submitted in fulfilment  
of the requirements for the degree  
of  
**Doctor of Philosophy in Environmental Planning**  
at  
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by  
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## Abstract

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Following an international trend, the flood defence approach historically applied in New Zealand has been superseded by a shift to flood risk management, an approach that aligns with the notion of ‘living with risk’ and devolves responsibility to risk-takers at the local level. Citizens are required to assume responsibility for assessing and minimising their own exposure, increasing their resilience and adapting to periodic flooding events. Inevitably, specific communities respond differently to flooding as their capabilities to understand, identify and manage flood risk varies. Environmental justice is the framework of inquiry within which issues of power, representation and participation in planning for flood risk management are examined to consider the injustices that are experienced by communities ‘living with risk’.

Quantitative and qualitative methods are used to investigate the extent planning is complicit in delivering flood risk management processes that can create environmentally unjust outcomes. Flood hazard maps overlaid with contextual demographic data identify who is living in at risk spaces in three case-study communities. Primary data was collected through semi-structured interviews with local government representatives and iwi, and a questionnaire to local residents was followed by interviews.

The analysis demonstrates how the environmental justice components of *distributive justice*, *procedural justice*, *justice as recognition* and a *capabilities approach to justice* are tied together in the political and social processes of managing floods. Procedural justice is based on participatory parity so ensuring all members of the affected community are treated fairly in the deliberative and discursive decision-making is essential. Evidence revealed a community’s limited access to extensive flood risk information, unequal power sharing in decision-making and community participation, and restricted ability for disadvantaged groups to access legal processes. Distributive justice demands the use of multi-criteria analysis, rather than cost-benefit analysis, in prioritising and directing flood risk management to vulnerable communities. Using direct benefit rating to fund flood mitigation works heightens existing inequalities within communities



and demands consideration of social difference in flood risk vulnerabilities. To ensure justice as recognition, local and indigenous knowledge needs to be valued and included in decision-making processes. Whilst working party arrangements are not inclusive they empower communities to be actively involved, promote trust and ownership of their local place and flood risk project. Recognition of identities and cultural practices is crucial for self-determination and minimises the marginalisation of voices. Planners need to examine social aspects of how people perceive, adapt and cope with flood risk, alongside place-based vulnerability. Policy, in embracing a capabilities approach to justice, would focus on the functionings people actually achieve rather than the opportunities. This calls for removing aggregations to look at the capabilities of individuals and communities to manage and respond to their flood risk. Judgements on planning initiatives need to be based on whether distributional outcomes enhance the capabilities of the relatively disadvantaged, thereby improving the resilience capacity of a community to manage flood risk.

This study bridges a research gap in drawing together flood risk management, planning and environmental justice; advancing understanding of the environmental injustices within flood risk management in New Zealand.

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*Non scholae sed vitae discimus*



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## Abbreviations

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CDEM	Civil Defence Emergency Management
GIS	Geographical Information Systems
KCDC	Kapiti Coast District Council
LGA	Local Government Act
LGNZ	Local Government New Zealand
LIM	Land Information Memorandum
LTP	Long Term Plan
MCDEM	Ministry of Civil Defence and Emergency Management
MfE	Ministry for the Environment
NES	National Environmental Standard
NIWA	National Institute of Water and Atmospheric Research
NPS	National Policy Statement
NZCPS	New Zealand Coastal Policy Statement 2010
NZDep2013	New Zealand Deprivation Index 2013
RMA	Resource Management Act
RPS	Regional Policy Statement
TCDC	Thames Coromandel District Council

UK	United Kingdom
USA	United States of America
WRC	Waikato Regional Council

## Chapter 1 Introduction

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### 1.1 Introductory overview

This research examines flood risk management in New Zealand through an original perspective that draws a direct link between environmental justice, flood risk management and planning. The research investigates three communities at risk of flooding in the district of Thames Coromandel to assess the links between the spatial distribution of flood risk and its management and the processes and practices of decision-making and community engagement in New Zealand. Matters of power, representation and participation with regard to planning for flood risk management are discussed and provide insights into the injustices that may be experienced by communities ‘living with risk’. The relationship between flood risk management and environmental justice raises issues regarding the additional disadvantages which people exposed to flood risk may have and questions the equity responsibilities of national and local government in New Zealand. Lessons for enhancing resilience and capacity building in communities vulnerable to flood risk suggest an integrative approach to environmental justice is required, comprising of *distributive justice*, *procedural justice*, *justice as recognition* and a *capabilities approach to justice*.

### 1.2 Establishing the problem - flood risk in New Zealand

New Zealand's most frequently occurring natural hazard is flooding and approximately two-thirds of its population live in areas prone to flooding (Royal Society of New Zealand 2016; Ministry for the Environment 2008). Sixty five percent of New Zealand's population and critical infrastructure is located within five kilometres of the coast (Statistics New Zealand 2009), with more than 100 cities and towns located on flood plains (Lawrence, Sullivan, Lash, *et al.* 2015). Flood risk in New Zealand is multidimensional, comprising fluvial, coastal and tidal flooding and surface water inundation, including urban run-off and local drainage failure. Where floods become problematic depends on human activities, including land development and the ways that water flows are channeled, diverted and resisted (Walker 2012). The protective function of natural systems, such as riverine vegetation that attenuates flood, has been undermined by the

transformation of the natural environment by agricultural and urban development (Glavovic, Saunders & Becker 2010b). Global climate change adds a further layer of complexity and uncertainty of the likelihood and consequences of flood risk. The projected increase in the intensity and frequency of extreme precipitation events, sea-level rise and storm surges as a consequence of global warming, compounds the risks faced by communities situated on floodplains and low-lying coastal margins (Ministry for the Environment 2008a and 2010).

Many New Zealand cities were built in localities that, due their development, have become prone to flood risk, such as low-lying floodplains and exposed coastal areas. Settlements situated in vulnerable areas were historically protected by physical works as central government sought to control the risk of flooding. These large-scale engineering works protected the communities against events that were within design parameters. Experience has shown, however, that protective works create a false sense of security as they stimulate development intensification via the ‘safe development paradox’ (Burby 2006; White 2013).

### **1.3 Managing floods in New Zealand**

Flood risk management in New Zealand is highly devolved to the local government level, which comprises a two-tier structure of regional and territorial councils. There are 78 councils in New Zealand of which 11 are regional councils and 61 are territorial authorities, comprising of 11 city councils and 50 district councils, and six unitary councils. The latter are territorial authorities with regional council responsibilities. Local government operates on the basis of an electoral mandate provided by citizens. The 78 councils have elected members to the roles of mayors, regional council chairs, councillors, local board and community board members. The effective management of flood risk in New Zealand depends on the interplay of statutes, which provide devolved powers to local government agencies, and rely on the officials exercising powers and responsibilities employing a coherent and coordinated approach.

Environmental resource management and flood control lie under the remit of regional councils. Regional councils provide river and flood control, control coastal areas, the beds of rivers and lakes, discharges into rivers and land, and

control land for the avoidance and mitigation of natural hazards. They regulate activities through regional plan provisions and non-regulatory methods to achieve plan objectives. Understanding the relationship between land and water, regional councils manage water using the principle of integrated catchment management. Territorial authorities are responsible for local services, such as storm water management, and control the subdivision and use of land through district plans. Regional and territorial authorities undertake the management and funding of flood risk management in consultation with local communities, enabling adaptive approaches to be responsive to local situations. Managing flood risk occurs in the wider context of emergency management and sustainability.

New Zealand's government has since 2002, through the Civil Defence Emergency Management (CDEM) Act, followed a risk management approach to natural hazards that relies on reducing risk, risk-preparedness, response and recovery. Attention has focused on avoiding and mitigating, specifically to reduce or alleviate, natural hazard risks through planning and building control, and on the principle of devolving responsibilities for flood risk management to the local level. The rescaling and re-scoping of flood risk management recently adopted in New Zealand follows a similar development in many European countries (Ministry for the Environment 2008, 2010).

International governments are increasingly promoting the notion of 'living with risk' as they acknowledge that the technocratic emphasis on flood defence, where water is controlled behind hard defences to reduce the probability of flooding, is inadequate as a means to protect communities (Scott 2013). Consequently a flood defence approach has been superseded by the shift to flood risk management. The term 'flood risk management' incorporates all measures used to reduce or redistribute flood risk including structural flood defence measures and non-structural alternatives, such as warning systems, insurance, emergency response and planning in flood risk areas (Penning-Rowsell 2014: 59). Flood risk management places an emphasis upon planning, capacity building, and personal responsibility to mitigate damage from flooding (Butler & Pidgeon 2011). The argument from this perspective is that not all floods can be prevented and societies must be prepared to live with risk. Consequently, citizens are being required to assume responsibility for assessing and minimising their own



exposure, increase their resilience and adapt to the periodic flooding events that will occur. In effect, flood risk management has expanded from the realm of the expert to be a concern for all (White 2010). Flood risk management has thus become the process of managing floods through prediction and the measurement of consequences on society, coupled with the planning of risk reduction strategies that are adaptive to changing circumstances. In this context, local communities are required to understand, identify and manage flood risk and inevitably communities respond differently (Glavovic, Saunders & Becker 2010b).

#### **1.4 The role of planning**

As flood risk management has become focused on mitigating flood risk and increasing resilience to flooding events, planning is taking a central role. The field of planning offers an appropriate forum to explore flood risk management as not only is it concerned with the spatial distribution of risk but it also has a remit to engage in related matters of power, representation and participation. The planning process regulates land use and its development, both for the benefit of the individual and communities. The process aims to deliver outcomes that are sustainable, as well as being socially and environmentally just and this results in compromises for states, communities and individuals. As planning is concerned with the spatial implications of socio-economic and environmental processes, planners frequently have to weigh up and consider justice conceptions of rights and obligations to make sound ethical judgments. Incorporating risk reduction strategies into development processes is a mandate for planning intervention. In order to implement adaptation responses to increased flood risk, planning processes must be anticipatory in analysis rather than retrospective.

#### **1.5 The unfairness of flood risk and its management**

The concept of community resilience has shifted the focus for local government from short-term response and recovery action towards building communities that are less vulnerable to the effects of flooding than otherwise would be. Whether a flood risk becomes a disaster for a community depends in part upon the social processes that create vulnerability and achieve degrees of coping and resilience. Inevitably some disadvantaged socio-economic or culturally defined groups are likely to be more vulnerable to the impacts of flooding than better resourced and

advantaged groups. Critically, these vulnerable groups may also be the least able to engage with the decision-making process or to cope with their new responsibilities, such as making payments towards the provision of flood mitigation works and the increased costs of flood insurance.

Flood risk management prioritises one locality or community over another, creating injustice and further inequality. In practice, decision-makers seek to maximise risk reduction with the resources available while ensuring that it is distributed through a just process that also protects the most vulnerable members of society (Sayers, Galloway, Penning-Rowsell, *et al.* 2014). If the purpose of flood risk management is to manage injustices and minimise the inequalities in flood risk across society, issues of decision-making, responsibility, power and the role of the state in protecting citizens from harm are relevant concerns for environmental justice research (Walker 2012).

## **1.6 Environmental justice as a framework**

Both flood risk and vulnerability to flooding are dynamic and multidimensional in character. Determining what justice should consist of in relation to flooding is complex as it raises questions of responsibility and demands scrutiny of the roles of individuals, the state and private markets in mitigating and coping with flood events. Justice is unavoidably judgemental because it concerns both the “right way” to distribute and value things (Sandel 2009), in this case flood risk and its management. Environmental justice is well positioned to provide an appropriate framework of inquiry as it is “a statement about the crucial nature of the relationship between the environment and the provision of justice itself” (Schlosberg 2013: 51). In its broadest sense environmental justice is the intertwining of the environment and social difference. Environmental justice is concerned with equity in the distribution of environmental risks, recognition of the diversity of the citizens and their experiences within local communities, participation in the political processes that create and manage environmental policy (Schlosberg 2004), and the capability of communities to mitigate and adapt to environmental risks. In raising questions about how the environment impacts on people’s lives, environmental justice has increasingly become utilized in environmental activism, political debate, academic research and policy-making

around the world (Walker 2012).

Whilst focusing on inequalities in vulnerability, environmental justice makes claims and assertions about what constitutes justice and fairness for people at risk of flooding. Correspondingly, Walker (2012: 149) states that “people and communities at risk become not only vulnerable but also citizens with rights to be asserted, achieved and protected”. Drawing on scholars Schlosberg (2007, 2009) and Walker (2012), this study adopts an integrative approach to environmental justice. Procedural justice is concerned with how decisions to manage and protect areas and communities at risk from flooding are made, who is involved and who has influence in those decisions. Distributive justice is threefold. Firstly, it considers the distribution of flood risk and its management. Secondly, it analyses the recipients of the environmental injustice, specifically who are the persons residing in areas identified as being at risk from flooding, and provides an assessment of inequalities in flood risk exposure. Thirdly, it examines the principle of distribution in terms of the criteria that is used, or would be the most appropriate, for distributing flood risk management and for the entitlement to receive assistance.

Part of the capacity to cope, mitigate, recover and adapt to flood risk relates to processes of discrimination or lack of recognition. Justice as recognition considers who is given respect and who is valued, both socially and politically, in the decision-making process and outcomes of flood risk management. Recognition enables and legitimises participation in the planning process. People’s experiences of flood impacts vary and demand an examination of inequalities in vulnerability in who is most at risk and why. The capabilities approach to justice promotes the capability of communities and people at risk of flooding to have control over their environment and the ability to have an influential role in the decision-making process. Incorporating the capabilities approach into environmental justice develops understanding of the physical, political, social and cultural conditions that create and sustain vulnerability to the impacts of flooding.

Research on environmental justice in New Zealand academia has been relatively sparse. Irrespective of this, New Zealand has developed areas of public involvement in policy-making, cultural preservation, heritage landscapes and

Māori approaches to community development which align with environmental justice principles. One aspect of environmental justice that has received research attention in New Zealand has been the link between poor health outcomes and air pollution, leading Pearce & Kingham (2008) and Richardson, Pearce & Kingham (2011) to establish that the levels of pollutants are higher in socially deprived neighbourhoods than elsewhere. Environmental justice has not been specifically recognised by the legislative and regulatory bodies in managing flood risk. New Zealand's key piece of environmental legislation is the Resource Management Act (RMA), which represents the statutory framework for planning and provides a context for the use and preservation of natural resources. Planning, as a direct consequence of the RMA, focuses on biophysical environmental concerns and uses economic measures to evaluate and guide decisions. This runs the risk of marginalising broader social policy debates, including those of environmental justice.

A central theme in New Zealand's environmental legislation is *Te Tiriti O Waitangi* - The Treaty of Waitangi, which provides the template for Māori involvement in environmental management and ensures that Māori self-determination is protected (Rixecker & Tipene-Matua 2012). The Treaty of Waitangi is an agreement drawn up between representatives of the British Crown and representatives of Māori iwi and hapū. It was first signed on 6<sup>th</sup> February 1840 at Waitangi in Northland, New Zealand. It has been a contested document. The Waitangi Tribunal was established by the Treaty of Waitangi Act 1975 to hear historical claims for redress. The Treaty of Waitangi Amendment Act 1985 enabled the retrospective investigation of grievances. The Waitangi Tribunal is a permanent commission of inquiry charged with making recommendations on claims brought by Māori relating to actions or omissions by the British Crown that breach the promises made in the Treaty of Waitangi 1840. See Durie (1998) and Orange (1989).

Māori have a representation in planning issues through their iwi (tribal kin group) affiliation. Iwi, as *tangata whenua* (people of the land, Māori people of a particular locality), are stakeholders in the collaborative planning process of environmental and natural resource management. Coombes (2013), however, asserts that Treaty rights are open to all Māori yet local government frequently

interprets the RMA as though Treaty rights are the preserve of *tangata whenua*. Consequently, voices of urban Māori may be excluded as they live in spaces where they are not represented by their iwi.

## **1.7 Research aim and objectives**

This research critically analyses the environmental justice implications of the planning policy and practice of flood risk management in New Zealand.

The research objectives are:

- (1) To evaluate the theoretical relationships between risk, environmental justice and flooding.
- (2) To outline and evaluate the planning frameworks which operationalise flooding and environmental justice in New Zealand.
- (3) To interrogate the environmental justice implications for people at risk from flooding in New Zealand.
- (4) To propose how planning for flood risk management within New Zealand could improve the consideration of environmental justice.

## **1.8 Structure of thesis**

Chapter 2 opens with a grounding of the term ‘risk’. Thereafter, the ‘living with risk’ notion is examined through consideration of the risk society perspective, as advanced by Beck (1992) and Giddens (1991). The principal statutes that set out the roles and responsibilities relating to flood risk management and the minimisation of risk through planning in New Zealand are summarised, as is the guidance material provided by national government. Perceived responsibilities for flood risk protection have a critical role in mediating behavioural responses to flood risk. Behavioural responses and individual conduct are intertwined with the individualisation of risk. Resilience of communities is being promoted as a policy framework by government. With an increased emphasis on community engagement, specifically community level empowerment and responsibility,

public participation is increasingly at the forefront of risk-based decision-making. A pre-requisite for community engagement is meaningful risk communication. Variations exist in people's abilities to engage with the process and in their adaptive capacity to respond to the impacts of flood risk, creating or furthering injustices. Throughout the analysis injustices within flood risk and its management are made apparent, thereby developing a claim for an environmental justice perspective.

The evolution of environmental justice and the defining of terminology begin the theoretical review in Chapter 3. Flooding is positioned as an environmental justice issue, which is closely connected to but distinct from climate justice. The limited attention to environmental justice in New Zealand is summarised. Different concepts of justice vary in their interpretation of just resource distribution and this highlights the importance of considering what defines justice, in terms of how things ought to be. Spatial justice, in respect of the 'just city', is examined as an appropriate response as it provides a holistic approach to planning. The four components of environmental justice – *distributive justice*, *procedural justice*, *justice as recognition* and *a capabilities approach to justice* – are examined and their relevance to flood risk and its management explained.

Chapter 4 outlines how the environmental justice implications of flood risk and its management are to be analysed. Within the introductory section the research aim and strategies are provided, thereafter an ethical approach is outlined and the position of the researcher is given. To answer the four research objectives and to provide a credible study, a mixed methods approach was used to gather empirical data. Desk-based studies of contemporary literature reviews and analysis of professional documents underpin the research. A case study approach was utilised which provided a local perspective and enabled an in-depth evaluation of the environmental justice implications for people living at risk from flooding in New Zealand. To understand who is living in at risk spaces, a spatial pattern of flood risk was completed. Flood hazard maps for the three case study communities in the Thames Coromandel district were overlaid with contextual demographic data. Primary data was collected through semi-structured interviews with local government representatives, planning professionals and iwi. A questionnaire was distributed to local residents and semi-structured interviews were then conducted

with willing local residents. Obstacles that arose during data collection are explained and provide lessons for future research projects.

Chapter 5 considers the procedural justice of flood risk management. In considering who is involved in the decision-making process and who has influence in those decisions, this chapter investigates central government leadership, planning and emergency management collaboration, the roles and responsibilities of regional and territorial authorities, iwi as stakeholder, and community participation in the process of flood risk management. In examining the process of how decisions are made in a risk-based approach, the study looks at the strategic planning cycle. It reveals the prioritisation of vulnerability of place and the determination of flood risk through flood modelling. It recognises the complexity inherent in identifying residual risk and coping with uncertainty, and it outlines the opportunity for contesting the decision-making process. The process of flood risk management is then examined through a procedural justice lens to establish the 'community of justice' and their procedural rights. Procedural rights are studied under four properties: availability of environmental information; inclusion in policy-making and decision-making processes; inclusion in community-based participatory research; and, access to legal processes to challenge decision-making. Chapter 5 concludes that maintaining an inclusive and collective sense of process and participation is a necessary part of procedural justice.

Chapter 6 scrutinises unevenness in the spatial distribution of flood risk and variations in its management through a case study approach. The spatial coincidence between flood risk and socio-economic characteristics of neighbourhoods is considered under three categories: the environmental burden or benefit that is being distributed; the recipients of the environmental injustice; and, the principle of distribution. Drawing on evidence from district plan maps and flood risk technical reports, the study examines the nature and extent of flood risk in three case study towns. Flood hazard maps were overlaid with contextual demographic data to establish who is living in at risk spaces. This approach looks at inequality through a spatial lens and identifies variation that is shown in spatial terms. In addressing the principle of distribution, the study focuses on flood mitigation decision-making and the financial implications of local flood

mitigation projects to establish what criteria is used, or would be the most appropriate, for distributing flood risk management and for the entitlement to receive assistance. Evidence is attained from a questionnaire survey to local residents and interviews with local government representatives and local residents. The findings suggest that the use of cost-benefit analysis to determine flood mitigation works may lead to injustices for communities living with risk because it is difficult to attribute value to social consequences into this evaluation tool. Evidence reveals that using direct benefit rating to fund flood mitigation works heightens existing inequalities within communities. In consequence, local government ought to consider social difference in assessments of flood vulnerabilities. Unevenness in distribution is a sign of difference rather than injustice, more accurately it is the processes and practices of managing flood risk that create injustices.

Within Chapter 7 the decision-making process for a local flood mitigation project is examined. Justice as recognition is concerned with who is given respect and valued. Recognition is essential for inclusive participation in the political decision-making of flood risk management. Qualitative evidence from interviews with council representatives, iwi and local residents enables the analysis of experiences and narratives, values and subjectivities that underpin how flood risk is understood by different individuals in the case study communities. Themes are drawn out that highlight unequal patterns of recognition in policy and decision-making: feelings of exclusion and marginalisation; concern of not being listened to; the undervaluing of local and historical knowledge; and, Māori participation and engagement. This in-depth examination exposes the qualities and key requisites that are required for justice as recognition within the planning process of flood risk management. The cultural value of land and waterways is an important aspect for Māori in New Zealand and demands consideration of who is best placed to judge what is valued in the process of flood risk management and how decisions should be reached.

A capabilities approach focuses on the importance of the functioning of individuals and communities to improve their resiliency to flood risk. The capabilities approach develops understanding of the physical, political, social and cultural conditions that create and sustain vulnerability to the impacts of flood



risk. Drawing upon qualitative evidence, Chapter 8 investigates how vulnerabilities, resilience and the long-term sustainability of communities are identified and strengthened by a planning process that informs flood risk management. To understand vulnerability to flood risk, planners would benefit from looking at how people perceive, adapt and cope with the risk of flooding. A resilient and sustainable community requires both appropriate planning initiatives and procedures that ensure communities engage with the planning processes to reduce risk. For people to have a meaningful involvement so that they participate in and influence the decision-making process it would be advantageous if local government were to endorse and actively facilitate community engagement in flood risk management on a continuous basis.

Chapter 9 provides a summary of findings in relation to the four objectives. Firstly, the chapter summarises the relationship between risk, environmental justice and flooding and reflects on how this research project links into the work of other scholarship. Secondly, it appraises the legislative framework that directs and guides flood risk management and environmental justice within planning in New Zealand. Thirdly, it highlights the environmental justice implications for people living at risk from flooding through the four concepts of justice. Fourthly, it provides a set of recommendations that proposes how planning for flood risk management could improve the consideration of environmental justice within New Zealand. It then identifies the research project's limitations and suggests pathways for future research, before closing with a concluding statement.

## **1.9 Scope of research project**

This study bridges an identifiable research gap and advances understanding of the environmental injustices within flood risk and its management in New Zealand. Drawing on the researcher's academic and work background, planning was used as the lens through which to investigate the fields of environmental justice and flood risk management. Whilst acknowledging the importance of emergency management, this research deals with planning as one aspect of the flood risk field of inquiry. This study does not include an assessment of vulnerability to the impacts of flood risk at an individual household level rather it focuses on the participatory and democratic planning process and scrutinises power relationships

within decision-making. In looking at how flood risk is managed, this research refers to risk governance arrangements through legislation; however, it does not provide a review of governance concepts and issues. The study focuses on interactions between the state and civil society.

### **1.10 Key terms**

This section establishes the definitions of key theoretical concepts to establish the position of this research. The theoretical contexts for these concepts are discussed in Chapters 2 and 3.

**Justice** - Aristotle (1104/1925) teaches that justice means giving people what they deserve and, as Sandel (2009: 9) explains, “in order to determine who deserves what, we have to determine what virtues are worthy of honor and reward”. This ultimately leads to consideration of what way of life a good society should promote. Justice comprises of normative judgements about how things ought to be.

**Environmental Justice** - This study draws upon the definition of environmental justice identified by Australian planning academic Byrne (2010: 960):

Everyone has the right to inhabit clean, healthy and safe environments, and to enjoy equal access to safe and healthy workplaces, schools, recreation areas and nutritious food, irrespective of race, ethnicity, gender, class, disability and other ‘axes of difference’.

**Risk** – Risk is at the “intersection between a hazard, the exposure of people and assets to the hazard, and the vulnerability of the people and assets that are exposed” (Crichton 1999).

**Flood risk** – Flood risk is defined as “the function of a hazard - the probability of the occurrence of a flood event, exposure - of the population and value of assets subject to flooding, and vulnerability - the capacity of a society to deal with the event” (Koks, Jongman, Husby, *et al.* 2015: 42).

**Vulnerability** – Vulnerability is defined as:

the characteristics of a person or a group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural or man-made disaster – noting that vulnerability is made up of many political-institutional, economic or socio-cultural factors (Schneiderbauer & Ehrlich 2004: 12).

## Chapter 2 Review of Living with the Risk of Flooding

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### 2.1 Introduction

The response to flood risk has traditionally focused on protection and has been developed based on flood risk calculations that are derived from historical analyses, measurable data and the use of static single numbers to reflect climate risk (Merz, Hall, Disse, *et al.* 2010; Quade & Lawrence 2011). There is, however, growing international recognition that absolute flood prevention or protection is unattainable. Attention has, consequently, shifted towards managing flood risk through a holistic and long-term approach that focuses on mitigation and adaptation and increasing resilience to flood events (Scott 2013). The increasing complexity and severe weather events arising from climate change are forcing many countries to assess if and how governance regimes need to transform in order to maintain resilience (Kuhlicke & Steinführer 2013). Rather than prescriptive measures that seek to respond to particular flood events, the emphasis within a ‘living with the risk of flooding’ approach is on reducing harmful outcomes. Risk-informed decision-making focuses on estimates of flood risks and the weighing up of costs and benefits of options to develop proportionate responses to risk.

Changing governance practices over recent decades have led to complex redistributions of responsibility away from the state to a multiplicity of local agencies and partnerships. People at risk increasingly have to take an active role to secure their safety. The contemporary risk society model, advanced by Beck (1995) and Giddens (1991), approaches risk from the perspective of modernity and identifies an increasingly ‘self conscious’ risk society which is reflexive about uncertainties. This is considered in Section 2.4. The individualisation of risk is evident in the risk-based approach to flood management in many Western countries, and is discussed in Section 2.5. In focusing on the governance of flood risk management, governments’ attention centres on accountability and responsabilisation of citizens to determine whether success in delivery has been achieved. As a result, Butler & Pidgeon (2011: 545) assert that “the question of *who* is responsible [is] more central than questions of *how* to ensure change in thinking and practice”. Section 2.6 provides an overview of New Zealand’s

legislative framework for managing flood risk. Government policy has promoted the devolution of responsibility for flood risk management to local authorities. In this context, Section 2.7 considers local empowerment and Section 2.8 examines public participation in risk-based decision-making. Public participation is influenced by risk perception and awareness, both of which shape the behavioural responses of individuals, and are influenced by risk communication - see Sections 2.9 and 2.10 respectively. As adaptive capacity building and increasing community resilience to the impacts of flooding events are at the forefront of current flood risk management strategies, attention on the processes of planning for resilient communities would be advantageous. Section 2.11 examines adaptive capacity and Section 2.12 addresses community resilience.

This study investigates how decisions are made and the value attributed to the different stakeholders and their knowledge throughout the process of providing flood risk management for New Zealand communities. This enables consideration of the environmental justice implications of the decision-making processes and the practices utilised in flood risk management in New Zealand.

## **2.2 Risk-based decision making**

Understandings of risk differ over time and place, and perceptions of risk vary between individuals and social groups. This recognition leads Beck (1992: 23) to state that risks are “open to social definition and construction”. Correspondingly, Reith (2004: 385) states that “our perception of what might constitute a risk affects how we act, which in turn alters the nature of the ‘objective’ world in which risk is situated”. Simple depictions of risk as “measures of hazards” with hazards defined as “threats to people and what they value” (Kates & Kasperson 1983: 7029) have been slowly replaced in risk and disaster management by more complex definitions which portray risk as the intersection between a hazard, the exposure of people and assets to the hazard, and the vulnerability of the people and assets that are exposed (Crichton 1999). The relationships between hazard, exposure and vulnerability have been illustrated through the ‘risk triangle’ (Crichton 1999; Crichton & Salt 2001), see Figure 2.1.

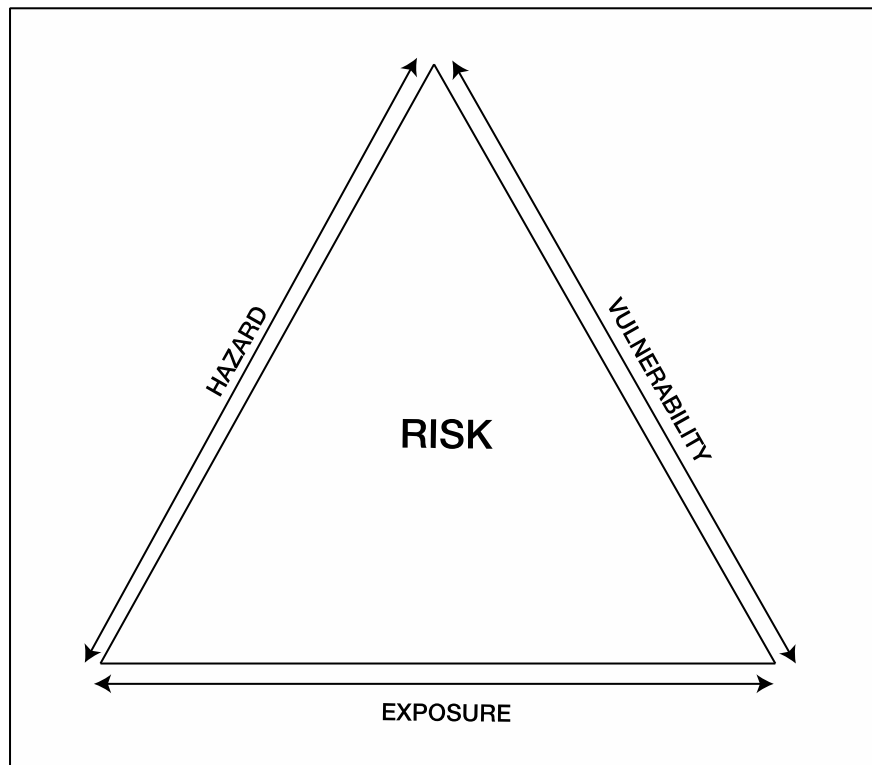


Figure 2.1 The risk triangle illustrating the relationship between risk and its component elements - hazard, exposure and vulnerability

Copyright approval sought from Crichton & Salt (2001)

Flood risk is generally defined as “the function of a hazard - the probability of the occurrence of a flood event, exposure - of the population and value of assets subject to flooding, and vulnerability - the capacity of a society to deal with the event” (Koks, Jongman, Husby, *et al.* 2015: 42). Theoretically, risk comprises of three major properties - uncertainty, futurity and probability (Mythen 2004) and, as will be shown, these not only shape people’s perceptions but also influence the management of flood risk.

### 2.2.1 Uncertainty

A risk only arises when an activity or event in the future contains some degree of uncertainty. Economist Frank Knight (1921) eloquently sought to distinguish between risk and uncertainty. Drawing on economic and statistical terms, Knight (1921) argued that risk is when there is a known chance of an event occurring and uncertainty is inescapable as you have no idea of the odds. Knight’s (1921: 46) classic description of risk as “determinate uncertainty” suggests that the more

knowledge we have, the less certain we become. The ideal of certainty is replaced with probability calculations that do not provide certainty but inform what is more or less probable (Reith 2004: 304). This is in contrast to the optimistic Enlightenment belief that greater knowledge brings greater certainty. Expanding upon this, Adams (1995: 26) states that “uncertainty is the realm not of calculation but of judgment [*sic.*]”. Notwithstanding the distinction between risk and uncertainty, a degree of overlap exists between these two concepts in contemporary society, for seemingly unique cases of uncertainty can rapidly evolve into risk as and when harm is established. This was demonstrated in the link between Bovine Spongiform Encephalopathy (BSE) in cattle and a new variant of Creutzfeldt-Jakob Disease (vCJD) in humans. The potential risk of a BSE outbreak was known well before the large-scale outbreak that threatened the European food supply in the 1990s occurred, however United Kingdom (UK) government experts did not act in time to avert a crisis. In this situation certain effects were suspected but their magnitude or probability were not ascertained with any accuracy (Mythen 2004). This particular crisis supports the proposition that the extent of a risk is unknown and far outweighs what is known. A heightened sense of uncertainty exists in the 21<sup>st</sup> century about the scale of flood risk associated with climate change and sea level rise. Hazard analysts are used to working with uncertainty and complexity. Indeed, “uncertainty is not a sign of poor science or inadequate calculations. It represents the best available knowledge at a specific point in time” (Renn 2015: 9).

### **2.2.2 Futurity**

The postmodern quest for futurity, in respect of happening in the future, promotes the use of future based tools of risk analysis as a pre-emptive approach. People do not experience risk directly, as the concept is essentially a temporal one, “grounded in its relation to an unknown future” and one that disappears once the anticipated event occurs (Reith 2004: 386). As Adam, Beck & Van Loon (2000: 2) note, “the essence of risk is not that it *is* happening, but that it *might* be happening [*sic.*]”. Risks are manufactured, not only through technology but also in the making of sense. Moreover, risks are culturally constructed, not because people prefer make-believe to facts but because at the point of decision sufficient facts are unavailable (Adams 1995). For social scientists, perceptions of risk are

tied to an understanding of what constitutes danger, threats and hazards and for whom. There are, however, some technically induced hazards or 'virtual risks', such as gene technology and atomic radiation, that cannot be obviously perceived by humans as they remain invisible to the senses and thus they appear to be unreal until they materialize as symptoms (Adam, Beck & Van Loon 2000: 3). For example, the Chernobyl reactor explosion in 1986 not only heightened public sensitivity to the harmful effects of nuclear technology but evidence, such as the impact of radioactive fallout on Cumbrian sheep farms in northern England, showed that environmental pollution cannot be delimited or contained as it defies temporal or geographical enclosure. Reith (2004: 394) states that "the utility of the notion of 'risk' lies not in its ability to correctly predict future outcomes . . . but rather in its ability to provide a basis for decision-making". The decision-making process within planning for flood risk management is at the centre of this research study, rather than providing any judgement on the flood risk of a particular place.

### **2.2.3 Probability**

Risk relates to forecasting and preparing for possible eventualities, as well as a desire to control the future. When experts assess risk they are usually attempting to predict future outcomes based on past performance (Giddens 1999). Although probability assessments can offer best guesses about risk impacts, in many instances the actual manifestation of harm remains unpredictable and uncertain (Mythen & Walklate 2006: 381). Probability deals with aggregates over the long-term and therefore it is impossible for risk analysis to make recommendations for specific times or individuals (Reith 2004: 397). For instance, the various aspects of flood risk are changing in time and at a range of scales as a direct consequence of climate change. Thus, flood risk management needs to deal with these future changes, and recognise that the probabilities of different social outcomes to a flood event are unknown. Giddens (1999:1) refers to Karl Popper's assertion that "science does not produce proof and can never do more than approximate to truth". Science thus involves a constant revision of claims to knowledge. As people are constantly responding to their circumstances and changing each others' risk-taking environments, the future is being reshaped by people's perceptions. This leads Adams (1995: 195) to state that "science has no firm ground on which



to stand”. Accordingly, he suggests that science does not solve the problem of how to proceed in the absence of agreed facts, it only scratches the margins of the uncontrollable problem.

Risk-based decision-making represents uncertainties in probabilistic terms. This approach to decision-making has been central to flood risk management and to conventional flood engineering, which considers the probability and consequences of a range of flooding events. The use of probability formats is, however, misleading for flood frequency. For instance, a 1:100 year flood is often interpreted to mean the risk is distant and will not occur for 100 years (Lawrence & Manning 2012). This may cause confusion in the public’s understanding of risk exposure as the climate changes. The utility of risk is as a guide for action rather than a predictable concept open to human intervention.

### **2.3 Vulnerability**

Vulnerability encapsulates how social context shapes risk, and this extends to flood risk. Vulnerability has been defined as:

the characteristics of a person or a group in terms of their capacity to anticipate, cope with, resist and recover from the impact of a natural or man-made disaster – noting that vulnerability is made up of many political-institutional, economic or socio-cultural factors (Schneiderbauer & Ehrlich 2004: 12).

This definition is appropriate because it targets a population’s characteristics and includes the temporal dimension by considering the mechanism of response. Vulnerability is related to poverty but should not be seen as synonymous to it. Chambers (1989: 1) points out the danger of confusing both terms and states that “vulnerability though is not the same as poverty. It means not lack or want, but defenceless, insecurity and exposure to risk, shocks, and stress”. The concept of vulnerability has a broader remit than poverty as it also embraces cultural and social components. Vulnerability of an individual or group is, according to Lindley, O’Neill, Kandeh, *et al.* (2011: 6), “characterized by the degree to which an external event converts into losses in their well-being”.

Hazard and exposure can be determined by using physical parameters and demographic datasets, respectively. The concept of vulnerability is, however, more complex to describe. Vulnerability relies on approximating methods, such as proxy indicators, to determine a population's vulnerability (Schneiderbauer & Ehrlich 2004). Vulnerability may not directly align with distinct population groups and viewing groups, such as the elderly, as it may imply helplessness and overlook positive attributes (Cannon 2008). Patterns of vulnerability to flood impacts are therefore dynamic, rather than static, as the vulnerability of social groups may change between places and across time. Vulnerability is often described as having three components: exposure to a hazard, susceptibility to harm, and adaptive capacity (Adger 2006; Birkholz, Muro, Jeffrey, *et al.* 2014: 14). See section 2.11 for discussion of adaptive capacity.

As will be shown within this thesis, patterns of the social distribution of flooding flood distribution need to be accompanied by analyses of why variations in the distributions have occurred in respect of the process and procedures of flood risk management and whether they have been just for those people living in areas at risk of flooding. A study of the spatial patterns of vulnerability to flood impacts in the UK, undertaken by Walker & Burningham (2011), revealed that deprived or poorer households are typically less prepared, less able to access financial resources to aid recovery and more susceptible to detrimental health impacts associated with a flood event than less-deprived or wealthier households.

Internationally, concern has been expressed in research that the increasing individualisation of risk management and redistribution of responsibilities may not recognise or address the existing inequalities in vulnerability within local communities. The New Zealand Climate Change Research Institute (Lawrence & Quade 2011) explored the vulnerability of an urban community, in this instance Hutt City, to flood risk in the context of climate change. Its findings indicate that whilst a risk-based approach is currently used in a small number of authority areas, specifically the Hawke's Bay region, the Tasman district and the Canterbury region, none have explicitly considered vulnerability from a social perspective. Whilst consideration of vulnerability is increasingly being accepted as the basis for risk informed decision-making, in terms of exposure and susceptibility to the hazard, social aspects of vulnerability are being ignored.

The term ‘climate disadvantage’ has been recently developed by Lindley, O’Neill, Kandeh, *et al.* (2011: 17) to capture the nuances of risk and to illustrate how hazard exposure, social vulnerability and the capacity to respond have intricate geographies. The research used UK flooding and heatwave events to measure socio-spatial vulnerabilities and map the geographical distributions of climate disadvantage. Despite recent academic work, such as Rufat, Tate, Burton, *et al.* (2015) and Koks, Jongman, Husby, *et al.* (2015), around the social dimensions of vulnerability, studies of flood disadvantage have yet to influence flood risk management practice (O’Hare & White 2018: 393). The wider notions of vulnerability, incorporating the social dimensions of vulnerability, are overlooked O’Hare & White (2018) assert because they open debates beyond the technical considerations of flood risk management, enter into other policy fields and raise political issues.

## **2.4 Living with risk is a human preoccupation**

Living with the possibility of danger or harm is far from being a new construct as humans have always lived with risk and uncertainty, generating fear. It is the interpretation of risk that has changed through time, place and within cultures. Around the mid twentieth century the calculation of risk began to reflect the uncertainties of an indeterminate world (Reith 2004). As theorists and scientists accepted that knowledge was imperfect, statistics were used to represent fluctuations and probabilities rather than to measure and quantify certainties. Accordingly, the acceptance of partial knowledge and risk minimisation came to the fore (Reith 2004). The uncertainties generated within a globalized and indeterministic world propelled the notion of risk into a wide range of disciplines. Towards the end of the twentieth century the notion of risk became popular in the social sciences, and three broad perspectives were developed, as noted by Lupton (1999): the cultural constructivist approach where the notion of risk is a social construct, as exemplified by Douglas (1992); the governmentality perspective where risk is a calculative discourse, as provided by writers such as O’Malley (2000) and Dean (1999); and, the risk society model advanced by Beck (1992)<sup>1</sup>

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<sup>1</sup> This was first published in 1986 as *Risikogesellschaft: auf Dem Weg in ein andere Moderne*.

and Giddens (1991). In all of these the notion of risk is crucial in different ways - as a social construct, as a calculative discourse and as an integral feature of late modern societies (Reith 2004). The utility of the concept of risk is demonstrated in its role as a guide for action in late modern societies and thus it is used as a foundation in this research project for the examination of risk, flooding and people.

#### **2.4.1 The risk society perspective**

The risk society perspective suggests that in contemporary life risk has become a central, generalised preoccupation to the extent that it is altering social institutions and contemporary consciousness. Risk society theorists refer to the rising cultural prevalence of risk where the quest is for safety. This is a useful starting point on which to examine the changing contemporary attitudes and responsibilities surrounding people living with the risk of flooding. Beck (1992, 1995) advocates that there has been a fundamental shift in the nature and meaning of risk. To summarise briefly, in Beck's thesis natural hazards are localized, open to regulation and attributable to the forces of nature. In contrast, manufactured risks are anthropogenic, incalculable and unconstrained by time and space (Mythen 2005: 130).

The changing dynamics of the relationship between risk, time and space is a central feature of the risk society thesis. Emerging global risks, such as climate change, Beck & Kropp (2007) claim are unlimited in their scope, are multi-causal in nature, are indeterminate and uncertain. The controversiality of manufactured uncertainties is itself an economic and political risk. This leads Beck (1992: 22) to assert that the legal and scientific calculation of risk has become obsolete. In contrast, Reith (2004: 394) argues that risk is not real but a measure of calculation - "a means of quantifying that reality". In Beck's view, the damaging effects of capitalist expansion, economic globalisation and technological developments create the need for political change. The burden of risk has accordingly shifted from the jurisdiction of institutions to the individualised sphere of personal decision-making. Beck (1992: 127) identifies a process of "universal individualisation" and refers to "a new mode of societalization, a kind of 'meta-

morphosis' or 'categorical shift' in relation to the individual and society". The risk society perspective argues that the cultural ubiquity of risk in everyday life creates a process of individualisation through which individuals are perpetually responsible for decision-making and accustomed to making personal risk assessments (Hudson 2003: 43).

The risk society perspective identifies a growing disparity between the nature of risk and the institutional apparatus responsible for risk regulation. Nobody appears to be individually responsible for environmental risks, neither scientific experts, politicians nor businesses, so that compensation and liability are obscured by the multi-causal nature of environmental risk production (Mythen 2004). As a result, the risk society approach turns environmental risk into a conductor for political engagement. For instance, as the visibility and frequency of flood risk events become more apparent within a local area there is a bottom-up rise in political interest and lobbying by local action groups. In this respect, flooding has become a political issue so that the way the problem becomes articulated and acted upon in flood risk management strategies is as complex and controversial as the problem of flooding itself (Donaldson, Lane, Ward, *et al.* 2013: 604).

#### **2.4.2 Flaws in the risk society perspective**

There are a number of critics of the risk society perspective, notably Dingwall (2000) and Scott (2000). Arguably, Beck's work is provocative but it is useful as it highlights the individualisation of risk. One such line of critique justifiably cautions that the simple separation between natural hazards and manufactured risks is not suitably reflective of the relationship between nature and culture. Floods result from an inseparable mix of human activities, such as urbanisation and rural land management, and non-human or natural processes. Therefore it is questionable whether natural hazards were ever truly natural, as the natural and the social have always been interconnected (Mythen 2007: 799). Floods are embedded in the social, economic and cultural context of the environments in which they occur (Smith, Kelly & Owen 2012). In recognising this interconnectivity, Walker, Whittle, Medd, *et al.* (2011: 2317) use the notion of assemblage to highlight the ways flood events are "locally and contingently situated in their production".

Climate change, Beck (2000: 217) asserts, alters the social and political order of the world. According to Beck (2000: 217) the negative effects of risk were previously managed by a combination of state governance, legal regulation and scientific expertise, but now existing institutions are ineffectual to the destructive force of uncontrollable dangers. Scott (2000) and Mythen (2004) criticise the risk society approach for extrapolating from the worst case scenarios as ‘icons of destruction’ to overstate the globalizing tendency of risk and hide the differential impacts of manufactured risks. Recognising difference is a critical feature of an environmental justice claim, and this is examined in Chapter 3. In assuming a uniformity of cultural experience in Western society, Beck fails to take account of everyday contexts in which risks are interpreted and negotiated (Tulloch & Lupton 2003). Flooding creates differential impacts depending on the local circumstances. For example, research from the UK, such as that by Fielding (2007), shows that people of lower socio-economic class are more likely to be living in areas at risk of flooding than middle and upper classes. Beck & Kropp (2007) are of the view that the distribution of environmental risk is open to chance, transcending established patterns of poverty. In contrast, Mythen (2007) argues that risk reinforces rather than transforms existing patterns of inequality, such as poverty. Risk management that reinforces existing patterns of inequality, such as the differences experienced by deprivation or age, may be a form of environmental injustice. This section has shown that in the risk society perspective, risk is a guide for action and creates a process of individualisation through which individuals are responsible for making personal risk assessments and informed decision-making. The individualisation of responsibility is discussed in the following section.

## **2.5 The individualisation of responsibility**

Recent work on environmental governance has focused on shifts in the institutions and structures through which environmental issues are governed, drawing on the concept of a ‘hollowing out’ of the state which the term ‘governance’ has come to denote (Donaldson, Lane, Ward, *et al.* 2013: 604). In defining governance, Richards & Smith (2002: 15) state that “governance demands that we consider all the actors and locations beyond the ‘core executive’ involved in the policy-

making process”. With a marked reduction in the size and remit of the public sector, single authorities of responsibility have been replaced by an evolving multiplicity of actors, networks and partnerships. This has changed how decisions are made, by whom and on what scale. Consequently, it has led to new forms of authority and control, such as diplomacy and management replacing coercion and enforcement.

The changing approach in the management of flood risk, in particular the non-coercive guidance of citizen and organisational conduct, is linked with a wider set of shifts in political governmentality that may be termed ‘advanced liberal’ (Butler & Pidgeon 2011: 534). ‘Advanced liberal’ forms of governance rely on complex distributions of responsibility, as well as mechanisms for ensuring accountability (*ibid.*). The French philosopher Foucault (1979) developed the notion of ‘governmentality’. ‘Governmentality’ refers to the ‘governing of mentalities’ and describes how modes of thought can be influenced by institutions and the state by guiding and shaping how individuals self-regulate and govern themselves (Lemke 2002; White 2015). In governing from a distance, central governments have devolved responsibility for flood risk management to professionals in institutions, who are required to identify people at risk and adopt responsibility for the success of strategies that they use to monitor and manage the risk (Miller & Rose 2008; Butler & Pidgeon 2011). In the UK context, Butler & Pidgeon (2011: 537) suggest that the object to be governed has shifted from the flood water to the citizens at risk of flooding and the agencies with designated responsibilities. Consequently, citizens are increasingly being presented as “active individuals responsible for knowing and mitigating their own flood risk” (Butler & Pidgeon 2011: 544).

New models of governance of natural hazards are evident in the development of regional and local resilience forums and action groups, which combine non-governmental, public and private actors and emphasise those at risk taking responsibility for their own protection. Medd & Marvin (2005) refer to this as a move towards the “governance of preparedness”. People at risk are gradually being transformed into risk managers and active participants of the multi-scale risk governance network (Kuhlicke, Steinführer, Begg, *et al.* 2011: 806). This process of ‘responsibilisation’ of individual citizens (Garland 1996) and

‘privatisation of risk’ (Steinfuhrer, Kuhlicke, De Marchi, *et al.* 2009) attempts to define these actors as agents that need to take decisions and choices about the prevention and mitigation of hazards. Nonetheless states, through their coordinating and engagement role associated with governance, have retained both power and influence (White 2015: 69). The next section looks at New Zealand’s legislative framework for planning and flood risk management to ascertain how stakeholders have been empowered.

## **2.6 New Zealand’s legislative framework**

Section 2.6 grounds the theoretical discussion of risk and governance by detailing the legislation and policy arrangements that provide for a multi-faceted approach of public and private responsibilities for flood risk management in New Zealand.

### **2.6.1 Statutes**

The principal statutes setting out the roles and responsibilities relating to flood risk management and the minimisation of risk through planning are the Resource Management Act (1991), the Local Government Act (2002), the Local Government Official Information and Meetings Act (1987), the Civil Defence Emergency Management Act (2002), the Building Act (2004) and the Soil Conservation and Rivers Control Act (1941). Other statutes of relevance include the Local Government (Rating) Act (2002) and the Land Drainage Act (1908). These statutes cover flood control, storm water management, flood warning and land drainage, the control of land-use to avoid or mitigate natural hazards, the consideration of climate change effects, the management of assets including infrastructure, and emergency management. The statutes have evolved over time and operate in parallel but, as will be demonstrated, they are not always well aligned, as, for example, they use variations in terminology. Figure 2.2 outlines the five principal statutes that govern natural hazard planning at different levels of government – central (orange), regional (green) and district/city level (blue).



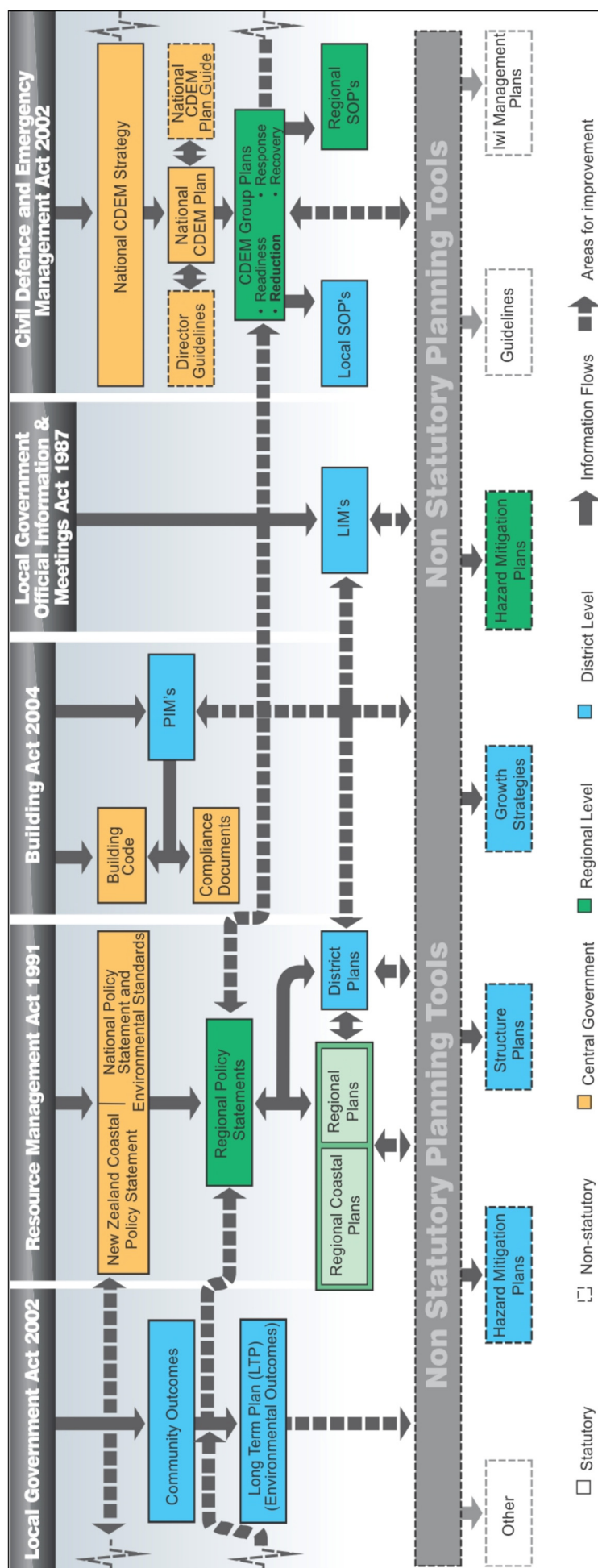


Figure 2.2 The principal legislative roles and responsibilities for flood risk management in New Zealand

Key: LTCCP - Long-Term Council Community Plan; PIM - Project Information Memorandum; LIM - Land Information Memorandum; SOP - Standard Operating Procedure

Copyright approval sought from Glavovic, Saunders & Becker (2010), drawn by GNS Science.

Notably, the RMA focuses on hazards rather than risk; risk is not included or defined within the RMA. Nonetheless, the forward-looking nature of the RMA creates a challenge for decision-makers as it involves them in a form of risk management (Warnock & Baker-Galloway 2015). The RMA requires decision-makers to consider who the future generations will be and what their needs will be; accordingly, the planning system is future orientated. All who exercise functions and powers under the RMA are to have “particular regard to the effects of climate change” (Section 7(i)). Arguably, the RMA does not endorse a strong form of the precautionary approach as that would place an evidential burden on developers to demonstrate that their activities would not cause unacceptable environmental harm (Warnock & Baker-Galloway 2015: 20).

The RMA requires regional councils and territorial authorities to identify and avoid or mitigate natural hazards through a system of policies, plans and consent approval processes. At the regional level, Section 30(1)(c)(iv) states that regional and unitary authorities have the function of the control of the use of land for the purposes of avoidance or mitigation of natural hazards. Similarly, Section 30(d)(v) and Section 30(g)(iv) confer functions to control coastal marine areas and the bed of a water body, respectively, for the avoidance or mitigation of natural hazards. Section 35 (5)(j) provides for the duty to gather information, monitor and keep records of natural hazards. Section 59 of the RMA provides for regional policy statements, which contain regional level policy, and states:

The purpose of a regional policy statement is to achieve the purpose of the Act by providing an overview of the resource management issues of the region and policies and methods to achieve integrated management of the natural and physical resources of the whole region.

Regional policy statements, thereby, assign responsibilities for risk management to regional and land-use plans and help to create a consistent approach of hazard management within a region. In addition, and in order to meet their statutory obligations under the RMA, regional councils are required to prepare a regional plan which can address specific hazard issues, including floodplain management.

At the territorial authority level, Section 31(1)(b)(i) of the RMA states that territorial authorities have the function of the control of any actual or potential

effects of the use development or protection of land for the purpose of the avoidance or mitigation of natural hazards. Territorial authorities have responsibility for flood hazard management, unless powers have been transferred to the regional council. They are required to prepare and implement district plans, which focus on local level planning and are required to ‘give effect to’ the relevant regional policy statement. Unitary plans combine both district and regional provisions into one plan, such as the Auckland Unitary Plan operative in part (2016). The RMA requires that regional policy statements and land-use plans are reviewed once every 10 years. Land-use plans refer to district, city and unitary plans. Thus, how most resources will be managed will be defined for a 10-year period because that is the ‘statutory life’ of plans. Central government, however, recognises that certain contexts, such as climate change, require an assessment of risk over the long term of at least 100 years, as specified in the New Zealand Coastal Policy Statement (Ministry of Conservation 2010).

Section 32 of the Resource Management Amendment Act 2013 requires that proposals on any RMA planning issue, and of any scale, must be examined for their appropriateness in achieving the purpose of the RMA; the benefits and costs need to be identified and assessed so that decision-makers have a sound understanding of the impact of a proposal will have on the community, environment and economy; and, the analysis must be documented so stakeholders and decision-makers can understand the rationale for policy choices. Section 32 is integral to ensuring transparent, robust decision-making in RMA plans, plan changes and policy statements that address flood risk management.

The RMA gives responsibilities for resource and environmental management to regional and territorial authorities to fulfil and makes provision for Māori input into the decision-making under Sections 6(e), 7 and 8. In Section 6(e) territorial authorities are directed to recognise and provide for the relationship of Māori and their culture and traditions with their ancestral lands, water, sites, *wāhi tapu* (places sacred to Māori) and other *taonga* (an object or natural resource which is highly prized in Māori culture). Section 7(a) states that particular regard is to be had to *kaitiakitanga*, which is defined in Section 2 as:

The exercise of guardianship by the *tangata whenua* [the Māori people of a particular locality, the people of the land] of an area in accordance

with *tikanga Māori* [Māori customs and ethics] in relation to natural and physical resources, and includes the ethic of stewardship.

Section 8 states that in achieving the purpose of the Act all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall take into account the principles of *Te Tiriti o Waitangi*, the Treaty of Waitangi. Sections 61(2A) and 74(2A) of the RMA require that regional and land-use plans take into account relevant planning documents recognised by an iwi authority and lodged with council as statutory documents. Iwi management plans reflect Māori tribal knowledge about and provisions for dealing with resource management issues, such as cultural concerns over diversions of watercourses.

Participation in decision-making is provided for in statute as the RMA allows “any person” to make submissions about a proposed plan or policy statement. This is significant in terms of procedural rights, and will be discussed in Chapter 5. The RMA at Schedule 1(14) constructs the right of standing for persons, in that any person who made a submission on a proposed policy statement or plan may apply to the Environment Court if they object to the authority’s final administrative decision. Section 106 enables consent authorities to refuse subdivision consent if they consider that the land is subject to inundation from any source or if any subsequent use of the land might accelerate or worsen such inundation. The applicant for a RMA resource consent or a submitter to a regional or district plan can appeal the Council’s decision to the Environment Court. Other appeals include public works consents, enforcement proceedings, declarations and abatement notices. The Environment Court is a national court, which sits in a number of courthouses in different parts of the country. It is an appellate court in that it considers matters afresh. The Environment Court is increasingly adopting a precautionary approach for the effects of climate change (Kenderdine 2010).

### ***The Resource Legislation Amendment Act***

The Ministry for the Environment (MfE) recently led a reform of the RMA. A key amendment for flood risk management in the Resource Legislation Amendment Act 2017 is the inclusion of the management of significant risks from natural hazards as a Section 6 ‘matter of national importance’ to be considered in

decision-making. This introduces the concept of risk into the RMA, and instructs planners to consider both the consequences and the likelihood of a natural hazard event when making a resource management decision.

### ***The Local Government Act***

The Local Government Act 2002 (LGA) provides for “democratic and effective local government that recognises the diversity of New Zealand communities” (Section 3). Section 3(d) “provides for local authorities to play a broad role in meeting the current and future needs of their communities for good-quality local infrastructure, local public services, and performance of regulatory functions”. This clause came into effect on 5 December 2012 under Section 4 of the Local Government Act 2002 Amendment Act 2012 and deleted previous references to “promoting the social, economic, environmental and cultural well-being of their communities”. The sustainable development approach is described in Section 14(h) of the LGA. This clause requires that, when deciding which public service to provide, local authorities have to take into account:

- (i) the social, economic and cultural interest of people and communities;
- (ii) the need to maintain and enhance the quality of the environment; and,
- (iii) the reasonably foreseeable needs of future generations.

The sustainable development principle is one of eleven principles governing the way local authorities must provide for the present and future needs of their communities. In contrast, the RMA has a single sustainable management purpose.

The LGA requires councils to identify ‘community outcomes’ and actions through a 10-year work programme by developing a Long-Term Plan (LTP), which has to be reviewed every 3 years (Schedule 10). The LTPs incorporate a community consultative framework for decision-making. Section 95 requires councils to develop an annual plan containing annual budgets for implementing activities outlined in the LTP. Consequently, councils should plan for the management of floods through the LTP and fund any flood risk management activities under the LGA annual planning framework. Proposals in the LTP may have environmental implications which conflict with a RMA plan. Decisions, however, must still be made in accordance with the purpose and principles of the RMA and the policies of the relevant resource management plan (Quality Planning 2016). As there are

no specific processes for carrying out consultation under the RMA, local authorities are required to apply the consultative provisions contained in the LGA when consulting the wider community, as per Schedule 1(3c) of the RMA.

### ***The Civil Defence Emergency Management Act***

The planning provisions established in the RMA and LGA are complemented by the Civil Defence Emergency Management (CDEM) Act 2002 whose purpose is “to improve and promote sustainable management of hazards in a way that contributes to the social, economic, cultural and environmental well-being and safety of the public and also to the protection of property” (Section 3a). Unlike the RMA, the CDEM Act contains a definition of risk as “the likelihood and consequence of a hazard”. The vision of the National Civil Defence Emergency Management Strategy (MCDEM 2008: 1) is “to build a resilient and safer New Zealand with communities understanding and managing their hazards and risks”. The Strategy, however, does not specifically define resilience. The CDEM Act aims to build community resilience through an all-hazards approach that is based on the ‘4Rs’ emergency management approach - reduction, readiness, response and recovery. RMA planning generally comes under reduction, which aims to mitigate or avoid the risks of hazards.

To enable the CDEM Act to be achieved, local authorities are required to set up and become members of Regional Civil Defence and Emergency Management Groups. Sixteen CDEM groups have been formed across New Zealand. The CDEM Groups are required to prepare plans and manage risks in accordance with the 4Rs. Their plans are to be reviewed once every 20 years. The CDEM planning framework places a strong emphasis on local initiatives for risk reduction.

### ***The Building Act***

The Building Act 2004 focuses on ensuring the safety and integrity of structures under construction. City and district councils issue building consents for structures, coastal defences and domestic dwellings in accordance with provisions in the Building Act. The Act provides for making publicly available hazard information associated with particular sites through a Project Information

Memorandum, which is required for building consent. The Building Act process is complemented by the RMA process. However, the RMA indicates a 100 year planning timeframe, whilst the Building Act provides for a structural design life of 50 years or protection from a 2% Annual Exceedance Probability flood, namely a 1:50 year return period flood. The different timeframes may not provide a consistent approach across local government agencies.

### ***The Local Government Official Information and Meetings Act***

Under the Local Government Official Information and Meetings Act 1987 territorial authorities must issue a Land Information Memorandum (LIM) on request. The LIM provides information on issues, such as natural hazards, that affect the respective parcel of land. LIMs are normally obtained at the time of land purchase. If hazard information is included in a district plan it is not required to be included in the LIM (Saunders, Beban & Kilvington 2013: 7), and this exclusion may be problematic if it is not realised by the viewer of the LIM.

### ***The Soil Conservation and Rivers Control Act***

The Soil Conservation and Rivers Control Act 1941 makes provision for the conservation of soil resources, the prevention of damage by erosion and the protection of property from damage by floods. Whilst much of the original Act has been repealed, it still provides powers for regional councils and the MfE to undertake catchment works to minimise and prevent damage by floods and erosion. These works are subject to the RMA. The Soil Conservation and Rivers Control Act has an emphasis on engineering works and was supported by government subsidies for their construction up until the early 1990s.

## **2.6.2 Guidance material for local government**

The MfE is the Government's principal adviser on the environment in New Zealand. It provides environmental management systems including laws and regulation, national direction, guidance and training on best practice, and information about the health of the environment. Guidance documents provide direction and advice for local government and a practical interpretation of policy.

MfE provides a national overview through the tools of National Policy Statements (NPS), which state objectives and policies for matters of national significance, and National Environmental Standards (NES), which are regulations that set baseline nationwide minimum standards for particular issues to maintain a clean, healthy environment (Ministry for the Environment 2016).

The New Zealand Coastal Policy Statement 2010 (NZCPS) (Ministry of Conservation 2010) is a mandatory document that provides guidance to local government on planning in coastal areas, including for sea level rise and related coastal hazards, to achieve sustainable management of the coastal environment. It recommends that a precautionary approach is taken for the effects of climate change. In line with the RMA and to ensure that coastal hazard risks take account of climate change, Policy 24 requires local authorities to assess hazard risks over a 100-year timeframe. This policy refers to giving priority to “areas at high risk”, but this risk level is not defined. Furthermore, there is no guidance on what an acceptable level of risk is to whom and to what.

To date, however, there is neither a NPS nor a NES for river or surface water flooding. Stronger national direction, than is currently provided, would help provide obligations for the long-term strategic planning for community resilience and may reduce the costs that occur from flood event recovery and related litigation. Nonetheless, as Rouse (2012: 58) suggests, a NPS must sanction regional variability to allow for differences in flood risk issues. In improving national direction, and as a foundation for a new NPS, MfE engaged Tonkin & Taylor Ltd to provide a framework for a risk-based approach for managing and planning for natural hazards under the RMA (Tonkin & Taylor 2016). An indicative date for completion of a NPS on managing significant risks from natural hazards is 2018.

Standards New Zealand, a business unit within the Ministry of Business, Innovation and Employment, has published a Standard (NZS 9401: 2008) as a voluntary tool that provides a set of principles to help decision-making and promote good practice in flood risk management. Its purpose is “to provide an agreed best practice approach . . . to ensure that proper consideration is given to all aspects of flood risk when making decisions, so that over the longer term, the



risk of flood damage decreases”. It is not technical, prescriptive or performance based, and it allows for regional variability in flood risk management (Rouse 2012: 17).

Standards Australia/New Zealand has also published generic risk management guidance (Australia/New Zealand ISO 3100: 2009) and an accompanying handbook (Australia/New Zealand Handbook 436: 2013). This latter Standard recommends that three key stages are implemented to ensure successful governance of risk management, namely principles, a framework and process, as presented in Figure 2.3.

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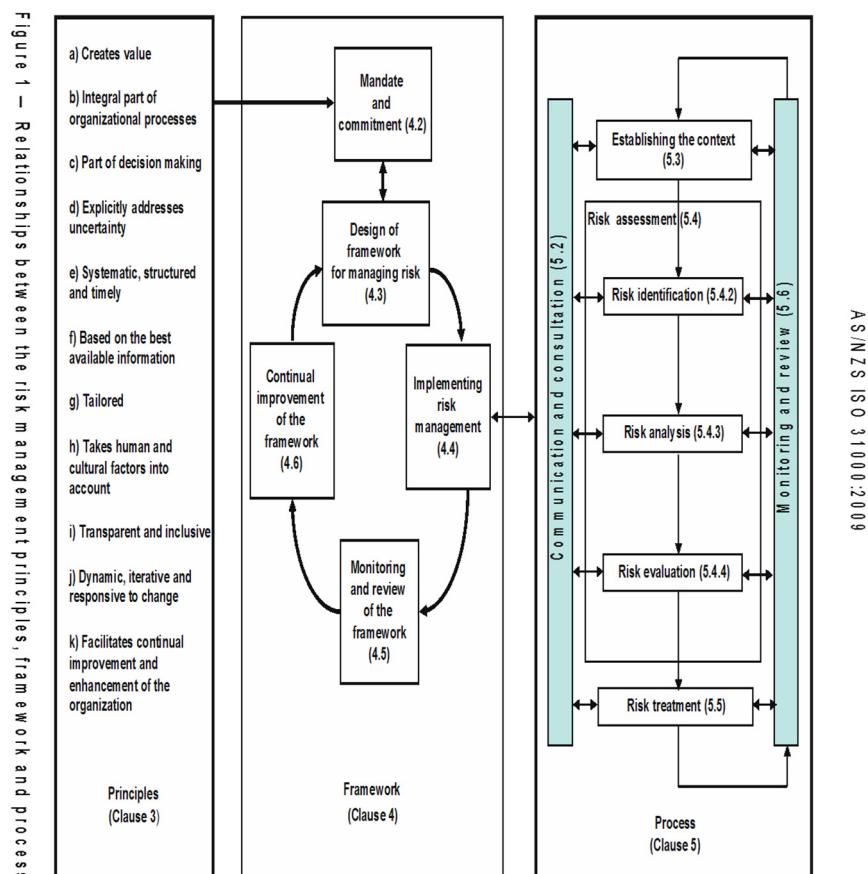


Figure 2.3 Relationships between the risk management principles, framework and process. Copyright obtained from *Australia/New Zealand ISO 3100: 2009*, page vi.

The first stage - Principles (Clause 3) - outlines 11 key principles for risk management to be successful. The second stage - Framework (Clause 4) - provides an adaptive management framework that provides the foundations and arrangements for all levels of an organisation. The third stage – Process (Clause 5) - is the risk management process. The terminology ‘risk treatment’ within the context of this research study refers to risk reduction measures through planning. This figure illustrates that participation with stakeholders is to be undertaken throughout the process. ‘Communication and consultation’ is a key aspect of a participatory planning approach. In theory there are opportunities for justice principles to be incorporated into risk management, such as communities at risk of flooding are ‘part of decision-making’ in a ‘transparent and inclusive’ manner, in which ‘human and cultural factors’ are taken into account. This research study examines whether this occurs in practice.

To support risk-based land-use policy and plan development in local government, the Crown Research Institutes of GNS Science and NIWA have developed the Riskscape tool. Riskscape is a multi-hazard impact and risk assessment online tool that converts hazard exposure information into the likely impacts for a locality or region. Its approach follows five steps: know your hazard; determine the severity of the consequence; evaluate the likelihood of an event; take a risk-based approach; and, monitor and evaluate. It does not, however, look at vulnerability assessments from a social perspective. NIWA has also developed an Urban Impacts Toolbox to help urban councils to “understand and evaluate the potential impacts of climate change in their city”. Both these risk assessment tools inform a risk-based planning approach and as optional tools are used at the discretion of individual councils.

Local Government New Zealand (LGNZ) has proposed a central risk agency to pool and coordinate local government resources to lower the risk and costs of disaster. Such an agency would establish guidelines and models by which local government manages risk and shares information ([lgnz.co.nz/our-work/local-government-risk-agency](http://lgnz.co.nz/our-work/local-government-risk-agency)). Central government is currently considering this proposal.

### 2.6.3 Discussion

The devolved system where local flood risks are the responsibility of local authorities enables the use of a variety of tools and approaches across the country that reflect local contexts. As there is no one standard approach to managing flood risk, differences in processes and practices may create injustices for communities living at risk from flooding.

Whilst the aim of legislation, specifically the RMA, CDEM Act and LGA, is to achieve and maintain a consistent sustainable approach to natural hazard management, inconsistent terminology is used. For example, ‘sustainable management’ is used in the RMA and CDEM Act whilst ‘sustainable development’ appears in the LGA and Building Act (Saunders 2012: 83). Similarly, the use of the terms ‘hazard’ and ‘risk’ is not consistent between the statutes. Under the RMA, the primary focus is on avoiding, remedying or mitigating the effects of natural hazards. ‘Risk’ was not referred to within the RMA until the Resource Legislation Amendment Act introduced “significant risks from natural hazards” in relation to the Section 6 matter of national importance. It may, however, be many years before the meaning of this provision is made clear through legal cases. Nonetheless, this amendment emphasises a risk-based approach to managing natural hazards planning and decision-making, taking into account the likelihood and consequences of natural hazards. Under the CDEM Act, ‘risk’ is defined in Section 4 as “the likelihood and consequences of a hazard”.

Similarly, the term ‘risk reduction’ is not included in the RMA, although ‘risk reduction’ under the CDEM Act is considered to be a RMA issue (MCDEM 2008a). The emergency management regime focuses on response and recovery, rather than on the avoidance of risk (Glavovic, Saunders & Becker 2010a). In the National CDEM Strategy, ‘risk reduction’ is a combination of ‘avoidance’ and ‘mitigation’ (MCDEM 2008a); although, neither ‘risk reduction’ nor mitigation are defined in the CDEM Act. Generally in New Zealand the term ‘mitigation’ is used to include measures that incorporate the risk but may leave a residual risk. ‘Avoidance’, on the other hand, reduces risk by not putting people and property in harms way. Levels of risk are often cited when mitigation and risk reduction are

discussed, however there is little guidance available on what an acceptable level of risk is, to whom and to what. This, as will shown in Chapter 5, has implications for planning policy (Saunders, Beban & Kilvington 2013: 10-11). ‘Mitigation’ under the RMA, as Saunders, Beban & Coomer (2014: 58) explain, does not need to result in a reduction of risk only mitigation from the hazard and consequently this may increase the risk. For example, development on a floodplain may mitigate the flood hazard through the use of structural works, but if an event occurs above the design standard the risk of damage to property and life could be substantial.

The next section examines how the living with flood risk approach focuses on local empowerment.

## **2.7 Analysing the living with risk term**

Risk theorists, such as Coaffee (2013) and Stirling (2009), may encourage a top-down hierarchical style of governing to address issues, such as a coastal storm surge, which require a high level of intervention, but such a precautionary approach poses considerable challenges, including legal impediments of imposing retrospective standards on pre-existing developments and high costs of mitigation. An adaptive local governance approach such as a living with flood approach, Bell & Morrison (2014) assert, possesses more flexibility for dealing with uncertainty and change than a precautionary governance approach. Its advantage is the use of bottom-up networks, that are based on localized processes of adjustment and exploration, to develop long-term sustainable solutions for living with the risk of flooding.

Despite this shift, some public authorities appear to be reluctant to move away from policy approaches that favour large-scale infrastructure. Such concerns were, for example, expressed in Australia after the 2010-2011 Queensland floods (Queensland Floods Commission of Inquiry 2012). Glavovic, Saunders & Becker (2010) stress how short-term interests in New Zealand continue to prevail over long-term community safety and sustainability from natural hazards. Economic growth, corporate interests and new development are prioritised and private property rights are considered to be “sacrosanct” (*ibid.*: 683). Land-use

restrictions that might curb development in flood risk zones are difficult to implement, as the dominant argument has been that relatively infrequent damages from flooding are compensated by the economic benefits of development on the floodplain. Consequently, protective works, post-event rescue and relief are relied upon rather than a reliance on the building of sustainable, hazard resilient communities through planning.

A socio-technical, risk-based approach to flood risk management requires consideration of how floods affect people and the interaction between technical systems, such as flood warnings, and the actions of at risk individuals (Nye, Tapsell & Twigger-Ross 2011: 289). This approach tends to lead to an increased emphasis on community engagement and specifically on community level empowerment and responsibility. Communities, however, are not homogenous in how they understand and respond to information. Therefore, “socially responsive, collectively driven, citizen empowered” flood risk management (Nye, Tapsell & Twigger-Ross 2011: 294) requires flexibility to adapt to the diverse needs of local communities.

The impacts of a flood can raise concerns about individual well-being and community identities, and the effectiveness of political representation and government agencies at the local level (Donaldson, Lane, Ward, *et al.* 2013: 604). ‘Localism’ has become manifest within flood risk management policy and practice in many European countries (Thaler & Priest 2014). Evans, Marsh & Stoker (2013) define ‘localism’ as a summary of activities and changes to encourage local actors and stakeholders to take over tasks, responsibility and power from central government, where the localities act independently within a national framework. Adger, Quinn, Lorenzoni, *et al.* (2012) see this move, in the context of climate change, as implying a new contract in the relationship between actors, citizens and stakeholders. However, the shift in responsibilities and duties between national and local bodies often occurs without a corresponding change of the legal framework and powers or the reallocation of additional resources between different scales (Johnston & Coaffee 2005). This, Thaler & Priest (2014) assert, has had a negative impact on democratic structure and social equity. A gap between policy guidelines and the implementation process at the local level may result in misunderstandings and conflicts between stakeholders, who possess

different agendas and levels of understanding. An insufficient balance of power between the different stakeholder groups is a justice concern and thus the relationship between scale and power is significant. The scale at which governance over particular resources occurs becomes a means through which power is exerted (Lawhon & Patel 2013: 1052). Political geographers Swyngedouw & Heynen (2003: 913) suggest that “the continuous reorganization of spatial scales is an integral part of social strategies to combat and defend control over limited resources and/or a struggle for empowerment”. Their work highlights the importance of looking at the processes through which scales are made and considering why certain scales take political prominence.

The increasing emphasis on widening public participation in environmental matters raises questions about the appropriate relationship between state and civil society (Donaldson, Lane, Ward, *et al.* 2013: 605). Reflecting upon this transition, Joseph (2013) argues that there is a pretence that good governance centres on creating local empowerment when it is actually focusing on removing barriers to open markets. Critics of the new governance also argue that power relations continue to play an intrinsic role in policy negotiations and maintain that decision-making is still dominated by a few powerful individuals or organisations (Walker, Tweed & Whittle 2014: 156). For example, local government may set policy that require buildings to be flood resistant but it is the property owners at risk of flooding that are required to bear the costs of policy implementation. White (2015: 66) suggests that “the blurring of roles and responsibilities may create a degree of uncertainty as to who should be responsible and held accountable if action does not happen”. In a period of ‘post-politics’, Swyngedouw (2009) argues that outcomes are focused on allowing stakeholders to participate in and agree on technocratic managerial approaches within the mainstream frame (White 2015: 86). Within post-politics:

Disruption or dissent is reduced to debates over the institutional modalities of governing, the accountancy calculus of risk and the technologies of expert administration or management ... [it] annuls dissent from the consultative spaces of policy-making and evacuates the proper political from the public sphere (Swyngedouw 2009: 609).

For instance, whilst local communities are required to engage in the planning process and consider options to mitigate future flood events within their locality,

the choice of options on the table for discussion may be constrained by planning officials.

As a result of the distribution of management responsibility to the private sector or unelected bodies, issues of accountability and justice are now increasingly opaque. By increasing the flood risk responsibilities of those at risk, Johnson & Priest (2008) recognise that a debate is created concerning accountability, significantly the differential accountability of the state to the taxpayers who fund flood risk management and those at risk more generally. An absence of citizen engagement is often interpreted as a lack of knowledge or an unwillingness to become involved. Criticising this interpretation, Butler & Pidgeon (2011) suggest that flood governance focuses on institutions and citizens knowing their responsibility for mitigating flood risk, but does not address issues of agency. The question of who is responsible and thereby accountable currently appears to be more central for government than questions of how to ensure change in thinking and practice. In order to develop sustainable practice in flood risk management an altered emphasis in governance is required away from responsabilisation and accountability towards a greater focus on the processes of delivery (Butler & Pidgeon 2011: 546).

This section has revealed that stakeholder and community engagement is an opportunity to empower both professional stakeholders and the public to take responsibility for building flood resilience into at risk communities. A significant issue arising from a risk-based approach is how to mainstream a community level empowerment and engagement approach into flood risk management practices. The following section examines the importance of the scope and timing of community engagement and public participation in decision-making.

## **2.8 Public participation in risk-based decision-making**

For a multi-faceted approach of public and private responsibilities for flood risk management, Johnson & Priest (2008) assert that the decision process must be participatory rather than consultative, transparent and accountable for all citizens. At the same time, they recognise that integrating the views and opinions of

individuals at risk “within a truly participatory system (rather than consultation) will by itself raise more questions and conflicts in the process” (*ibid.*: 523).

Focusing on delivery, Stirling (2009: 216) advocates that in widening public participation officials need to find ways to involve the public at the start of the process. This, he suggests, requires “reflexive systems of governance”. The participatory approach provides the opportunity for “a more equal partnership between social and natural science advice in policy advice” (Stirling 2010: 1031). It thereby could lead to the integration of quantitative and qualitative methods; articulate risk assessment and management concepts; and, assist in reconciling risk-based and precautionary methods. A pluralistic participatory approach can address issues of ambiguity where there is disagreement between key stakeholders over risk contexts, outcomes, benefits or harms (*ibid.*: 1030). Klinke & Renn (2014) suggest that it is important to ensure that all relevant knowledge pools, public values and social interests are integrated into the governance process of risk management, as these groups and individuals will ultimately experience the outcomes of risk decisions. Furthermore, as collective risk taking requires legitimisation, it is politically prudent to involve stakeholders in the decision-making process (Renn 2015: 9). To increase transparency and promote early consensus-building, Nye, Tapsell & Twigger-Ross (2011) state that it is important to engage a wide group of stakeholders early on in flood risk management decisions. Such an approach, they argue, should reduce the ‘top down’ flow of information and lessen the costs of public and stakeholder engagement and consultation (*ibid.*: 294).

With the policy shift to flood risk management and the increased focus on the role of the community in risk management, exploring sustainable solutions in partnership with local communities is important. How local people are positioned within the practice of harnessing knowledge can have a material impact on the nature and form of flood risk management (Lane, Odoni, Landström, *et al.* 2011: 32). Professionals have dominated decision-making processes that are technically and economically efficient, but neither just nor fair (Johnson, Penning-Rowsell & Parker 2007). Landström, Whatmore, Lane, *et al.* (2011) advocate for a co-production of knowledge on the basis that a local community may possess more than simply ‘local lay knowledge’ which, they argue, could be beneficially used to



negotiate a collective sense of knowledge. A collaborative project in the UK (Lane, Odoni, Landström, *et al.* 2011; Landström, Whatmore, Lane, *et al.* 2011) involved social scientists, hydrologists and local residents in knowledge production for a flood alleviation scheme for the town of Ryedale in Yorkshire. The ‘experiment’ of involving local residents from the outset led to the co-production of a new model for flooding in the local area and also a new framing of the problem that generated different solutions. Public participation does not generally extend into model design but Landström, Whatmore, Lane, *et al.* (2011) suggest that, in order for scientific modelling to contribute to the coproduction of new knowledge about environmental processes, scientists need to reposition their modelling practices. Correspondingly, Haughton, Bankoff & Coulthard (2015: 10) suggest that labels can be misleading, for example ‘scientific’ and ‘local lay’ knowledge are “highly malleable concepts”. Their research highlights that flood policy is hampered by “an under-developed appreciation of how knowledge claims are mobilised in highly partial and sometimes emotionally charged ways” (*ibid.*: 11). Joint working arrangements to improve knowledge sharing and knowledge generation were encouraged by the Pitt Report (Pitt 2008). An example would be partnerships, involving local authorities and their consultants with local landholders and communities, working together to record flood risk information into Geographical Information Systems (GIS).

Inequalities, however, may exist in how communities engage with the planning process for flood risk management. For instance, poorer communities may like wealthier communities possess local knowledge but the former may not be best equipped to challenge an authority’s planning decisions and policies as they lack the financial resources to commission independent scientific reports (Haughton, Bankoff & Coulthard 2015). This example indicates the importance of justice conceptions when making risk-based decisions, and highlights the need for scrutiny of what justice should entail.

Public participation in flood risk management is influenced by risk perception, as discussed in Section 2.8. To motivate individual action, public risk communication and education are important strategies - as Section 2.9 reveals. Open and meaningful communication between professionals, local agencies and

members of the public is a necessity for positive community engagement and collaborative partnerships.

## **2.9 Risk perception and behavioural responses**

Behavioural responses to a risk are driven by human assessments and weighting of the perceived risk (Slovic 1987; Birkholz, Muro, Jeffrey, *et al.* 2014). These intuitive judgements, through which people assess the potential impacts and consequences of a hazard and choose appropriate behavioural responses, are referred to as risk perceptions (Slovic 1987; Birkholz, Muro, Jeffrey, *et al.* 2014). As uncontested scientific evidence is increasingly rare, public perception becomes the determining element of risk acceptability. Risk acceptability depends on whether or not those people who carry the potential losses will also receive the benefits. For example, coastal residents have to weigh up the threat of coastal erosion or flooding against the attractions of a seafront lifestyle. Burningham, Fielding & Thrush (2008) suggest that to understand people's perspectives on flood risk it is imperative that the risks are viewed in the context of evaluations of local life and the local environment. How risk information is assessed is dependant on an individual's judgement and perception of the risk. This is influenced by the socio-cultural context of the risk and how it fits in with an individual's everyday experience of the risk and the associated risk information. A lack of direct personal experience of flood events weakens understanding and constrains motivation to take personal action (Harvatt, Petts & Chilvers 2011).

Contemporary academic thinking around flood risk management is inadequately informed by risk perception (Birkholz, Muro, Jeffrey, *et al.* 2014). The outcomes of risk perception research are valuable and, according to Burns & Slovic (2012: 581), can help to "better prescribe risk management and communication strategies, and thereby lessen the societal costs of major disasters". Some cognitive factors limit the willingness of individuals to adopt household-level protective actions, such as the perception that large-scale structural protective measures are sufficient to prevent a flood. Therefore, socio-economic variables, such as income, are not sufficient to explain precautionary behaviour as even if people have the resources and ability to act they may not choose to do so. For example, a Dutch study of households found that respondents considered the government to have primary responsibility for protection against flood damage

and this lowered their adoption of individual or personal protective measures (Terpstra & Gutteling 2008). Bubeck, Botzen & Aerts (2012) conclude that knowledge is not always a useful predictor of behaviour and their research suggests that focusing on risk awareness can lead to non-protective responses, such as fatalism, denial and wishful thinking. Instead they recommend that to maximise protective responses from individuals, government agencies ought to provide information on the effectiveness of household flood mitigation measures and provide details on their estimated costs and implementation. This is reinforced by Harvatt, Petts & Chilvers (2011: 80), who found that “people evaluate potential protection or mitigation actions in terms of their efficacy, cost and implementation barriers”. Raising risk awareness by itself fails to recognise the differing coping abilities of individuals. As will be discussed, agencies involved in flood risk management need to recognise the differences in need and capabilities within a community.

The extent to which many people make informed choices about their flood risk is debatable. Priest (2014) suggests that even purchasers of new properties in New Zealand may not be reasonably expected to know all of the flood risks if the planning system has not made all of the facts explicit. For example, flood risks are constantly changing and increased knowledge about risk, such as the inclusion of surface water and groundwater flooding in risk assessments, may alter the assessment or designation of flood risk areas. Furthermore, choices for people in the rental sector, and in particular those on low incomes, may be limited and consequently they are pushed into renting affordable accommodation in high flood risk areas (Priest 2014). Planning can unintentionally create high land values in flood-free areas which may prevent those on lower incomes from residing in those areas (Geaves & Penning-Rowsell 2016: 284). Planning, therefore, concerns engaging with questions of justice and value in a relational and collective manner.

## **2.10 Risk communication**

A prerequisite for community engagement is open and meaningful communication between professionals, local agencies and members of the public. O’Sullivan, Bradford, Bonaiuto, *et al.* (2012) assume that people who engage with

and respond to flood communications will have higher resilience levels than those who don't. Whilst vast quantities of relevant information for flood awareness and preparedness exist, the authors are concerned however about low penetration levels of information resources. In a New Zealand assessment, Rouse (2012) warns that it is not always clear whether a one-way information flow from a council of printed information sheets or media adverts highlighting risk strategies result in increased public awareness. To ensure that flood risk information reaches all intended recipients, O'Sullivan, Bradford, Bonaiuto, *et al.* (2012) recommend using multiple channels of communication; although, they warn that communication without trust and credibility is likely to have very little impact. To this end, Harvatt, Petts & Chilvers (2011) identify the need for communication that is responsive to local contexts and engages with communities at risk. For example, social media networks, such as local community Facebook webpages, provide important local sources of information that may often be more important than official sources.

It is vital for risk communication strategies to engage in the process of building local awareness. Risk communication and risk education have the potential to play key roles in local action groups and networks, but they are not always developed or effective in practice (Walker, Tweed & Whittle 2014). All facets of society, not just those at risk, have a role to play in shaping how risk is understood and dealt with. Kuhlicke, Steinführer, Begg, *et al.* (2011) argue for long-term engagement based on dialogue between those at risk, policy-makers and other stakeholders, as opposed to relying on one-way risk communication strategy. Ideally, this process will create a "negotiation of shared responsibility for flood protection" (Birkholz, Muro, Jeffrey, *et al.* 2014: 18). Undertaking long-term engagement focuses on how societies value personal protection against public protective measures and their willingness to pay.

Flood risk communication is inherently a political practice. As Demeritt & Nobert (2014: 323) state, "the very techniques of risk communication can involve tacit political commitments about the framing of risk and responsibility for its management". Therefore, in deliberations of how best to design and implement flood risk communication strategies, considerations about the reasons for communicating and the relations of power must be taken into account. Risk

communication through open dialogue builds trust in organisations and improves the relationship between stakeholders. As the following section discusses, risk communication is important for understanding and assessing differing vulnerabilities to flood risk and its impacts. Furthermore, risk communication is important for the promotion of adaptive capacity as a process of adjusting, coping and learning to become resilient to increased flood risk.

## **2.11 Adaptive capacity**

Governance, vulnerability, risk perception, risk communication and education interact with the notion of adaptive capacity building, in enabling people and organisations to prepare for and adapt to the impact of natural hazards. Adaptive capacity has metamorphosed from a concept that refers to the ability to recover to one that has been defined as the ability to make adjustments so as to become more effective at dealing with hazards than the original system (Smit & Wandel 2006). The concept of adaptive capacity is increasingly gaining relevance for climate change and flood risk. Adaptive capacity describes the ability of a system to adapt to climate change - to moderate potential damages, to take advantage of opportunities or to cope with adverse impacts (Intergovernmental Panel on Climate Change 2007). Adaptive capacity includes coping capacity – the ability to accept the impacts and to recover back to state before the impact, and the ability to adapt – the change in a system’s exposure or sensitivity to reduce to future impacts (Lawrence & Quade 2011). Adaptive capacity greatly influences the vulnerability of communities to climate change effects and hazards, including flood risk.

The adaptive capacity of social systems depends on the nature of their institutions and the ability to absorb shock (Joseph 2013). There may be uneven availability of opportunities to reduce exposure, in terms of preparing, responding and recovering from a flood event, and therefore differences in vulnerability. The lack of capacities, such as preparedness, coping, response and recovery, is considered to be a central component of (social) vulnerability (Kuhlicke, Steinführer, Begg, *et al.* 2011: 806). Social factors may inhibit adaptive capacity, such as disability or lack of resources. Poorer households have less adaptive capacity than better off households because they are more risk-averse, although it is too simplistic to equate low adaptive capacity with poverty (Béné, Wood, Newsham, *et al.* 2012).

Levine, Ludi & Jones (2011) argue that strengthening adaptive capacity is more than providing assets and technology, it is about developing people's agency – their ability to make their own more informed choices and to develop and action their own plans. Developing adaptive capacity is thus about governance and power. An environmental justice approach to adaptation focuses on building adaptive capacity by alleviating the ill, such as poverty, and reducing vulnerability. The adaptive capacity of individuals and the community as a whole in building resilience is an important aspect of vulnerability to flood risk. Adaptations may include modifying susceptibility, increasing response capacity and reducing exposure (Merz, Hall, Disse, *et al.* 2010). Adaptive capacity for flood risk management needs to be promoted and cultivated at the level of institutions as well as communities and individuals.

## **2.12 Community resilience**

With an increased exposure to risk and a greater sense of uncertainty, governments have promoted resilience as a policy framework in risk management. Resilience is used as a framework concept to build capacity to manage specific uncertain risks, such as flooding (White 2015). Resilience informed responses to changing circumstances are beginning to emerge in New Zealand, notably resilience to earthquakes (Manning, Lawrence, King, *et al.* 2014). Influentially, Holling (1973) distinguished between two notions of resilience that are based on a return to equilibrium. 'Emergency resilience' refers to the ability of an ecosystem to return to stability or equilibrium after a disturbance, and 'ecological resilience' concerns the ability to absorb shocks and continue to exist. More recently, 'evolutionary resilience' has developed which is concerned with transformative adaptation and focuses on being equipped to accommodate shocks and stresses (White & O'Hare 2014). In addition to recovering from an event or adapting to changing circumstances, resilience has a strong human element. The social and cultural aspects focus on the nature of institutions and the ability of a society to meet the multifaceted challenges of the future (White 2015: 127). Resilience to flood risk can, for example, be increased by enabling more effective decision-making, promoting behavioural change and reducing poverty at a societal level. In this way resilience is used to argue for a need for all flood risk stakeholders,

including individuals and local government institutions, to cope better with the impacts of flood risk.

Resilience in risk management, which is concerned with the preservation of daily activities of individuals and communities, fits in with neoliberal governmentality (Joseph 2013). Correspondingly, White (2015: 128) states that resilience is a “fuzzy concept” that incorporates “shifting notions of risk and responsibility bounded by a reconstituted governance framework; all of which can engender confidence and potentially facilitate the transfer of costs away from the state to the private sector and communities”. This raises justice concerns of who should have to cope with flood risk and whose responsibility is to better protect households, such as in organising and paying for preparedness initiatives.

Kuhlicke, Steinführer, Begg, *et al.* (2011) encourage a resilience-based strategy for managing flood risk that embraces continual and flexible adaptation to changing circumstances. They focus on social learning and social capacity building processes, such as knowledge to act, motivation to act, social networks and economic capacity, and emphasise that it is an iterative and participatory process. This, according to Shaw, Scully & Hart (2014: 195), almost views resilience as an ‘ability’ (Béné, Wood, Newsham, *et al.* 2012), which can be developed to respond in adverse conditions and compensate vulnerabilities. Shaw, Scully & Hart (2014) warn that emphasizing vulnerability can obscure the recovery process. In the process of recovery from a flood, Whittle, Medd, Deeming, *et al.* (2010) observe that there can be set-backs and returns to lower positions on the recovery scale. For instance, making assumptions about the vulnerability of a group, such as the elderly, could lead to an increase in state support that diminishes the self-organisation of the individuals and consequently undermines the community group’s own resilience. Accordingly, both interventionist and participatory, bottom-up approaches have strengths and weaknesses and should be used appropriately to support social capacity building. Kuhlicke, Steinführer, Begg, *et al.* (2011: 812) caution that if social capacity building is a way of facilitating the withdrawal of state resources from hazard management towards an increasing privatisation of risk in which individuals, communities and organisations become more responsible, this may do little to address, understand and reduce already existing inequalities in vulnerability.

Justice demands that choices are made about what is valuable and in making judgements the experiences and needs of a more vulnerable group may be devalued. Procedural justice is about the right to control decisions across the community and this requires recognition of existing inequalities in vulnerability.

In New Zealand there has been a growing use of community level flood defences that are directly funded by the community, as in the UK (Geaves & Penning-Rowsell 2016). This could potentially accentuate differences in the level and scope of flood protections constructed in wealthy and less affluent communities. Research completed by Manning, Lawrence, King, *et al.* (2014: 585) revealed that the implementation of flood protection occurred sooner in higher socio-economic areas within the Hutt Valley in New Zealand as compared with lower socio-economic areas. This was because higher land values resulted in higher benefit-cost ratios for these areas. Such evidence indicates that flood risk management decisions may have a disproportionate impact on particular societal groups and raises issues of justice in the process. In making decisions about structural flood defence investment, priority is given to cost-benefit analysis. Thus, economic efficiency considerations dominate over procedural equality principles (Johnson, Penning-Rowsell & Parker 2007). Such processes fail to target the most vulnerable to flooding or to adequately assist those areas that under cost-benefit analysis will not justify large capital intensive schemes (*ibid.*: 387).

The potential of community resilience as a mechanism for disaster risk reduction is gaining recognition worldwide (Schelfaut, Pannemans, van der Craats, *et al.* 2011). For example, work stimulating shared learning experiences, such as McEwen, Krause, Jones, *et al.* (2012) in promoting sustainable flood memory and Ashley, Blanskby, Newman, *et al.* (2012) in focusing on the cultivation of Learning Alliances, seeks to incorporate resilience as an aspiration for flood threatened communities. Birkholz, Muro, Jeffrey, *et al.* (2014) suggest that these approaches encourage stakeholders to accept different perspectives on risk and employ alternative innovative responses to flood threats. Strengthening social networks within a community promotes resilience. Paradoxically, research undertaken by Smith, Davies-Colley, Mackay, *et al.* (2011) found that the rationalisation of rural services is threatening the social fabric and consequently rural community networks within New Zealand are unravelling. This piece of research examined



the social impact of the 2004 Manawatu floods and observed that the vulnerability of the rural communities affected had been increased by the ‘hollowing out’ of the rural community, with changing populations and loss of community foci, and changes in communication methods that added to an increased sense of isolation during flood events. In order to deal with the challenges of extreme climatic events, the authors call for public participation in risk management planning and the fostering of formal associations and informal networks to provide collective help and mutual assistance. In a similar vein, Glavovic (2010) promotes collaborative partnerships between government, the private sector and civil society in New Zealand to reconcile competing community interests and to make decisions that reduce vulnerability and encourage resilience to hazard risk. Promoters and policy-makers of adaptive capacity building, however, need to understand and address the existing inequalities of vulnerability within communities so that policies are directed to improve situations rather than creating further injustice.

## **2.13 Conclusion**

Changes to risk governance highlight the appropriate relationship between the state, agencies and civil society in managing and mitigating flood risk. Responsibility for flood risk management in New Zealand has been devolved to local government, with central government maintaining a supporting and enabling role. Legislation and guidance material provide the national context for flood risk management and guide how local practitioners conceptualise and prioritise their task of managing flood risk. The intent of a devolved framework is that decision-making occurs at the level at which people are affected by the potential risk (Ministry for the Environment 2008). Issues of decision-making, responsibility, power and the role of the state in protecting people from the impacts of flooding are relevant concerns for environmental justice research. This is because they engage with the existing inequalities and injustices that create vulnerabilities and lead communities living at risk from flooding to achieve different levels of coping and resilience. An evaluation of how legislation and guidance material is applied and its procedural justice implications is undertaken in Chapter 5.

A review of literature suggests that in focusing on the governance of flood risk management, attention has become centred on responsibility and accountability. In this case the processes of delivery and their justice consequences are becoming important for inquiry. This study examines the decision-process and assesses its participatory scope for New Zealand people living in areas at risk of flooding. It explores the division of responsibility between the state, public organisations and members of the public in the management of flood risk in New Zealand. Literature indicates that risk perception and behavioural responses of individual households are critical considerations in the creation of resilient communities. Raising risk awareness by itself, however, fails to recognise the different coping abilities of individuals.

The notion of adaptive capacity building demands an understanding of vulnerability, risk perception, communication and education. Consideration of the local context is essential for improving resilience within communities and requires flexibility with the processes of delivery to adapt to the diverse needs of local communities. Risk accentuates difference, such as the social disparities that exist within flood prone areas, and creates injustices. While there will always be unevenness in distribution, such as the exposure to flooding, it is imperative to know and understand the extent to which policy, processes and practices may be blind to the issues of difference and may potentially exacerbate the existing inequalities. Justice issues in flood risk management probe how decisions to invest in flood protection are made and by who, examine how awareness and preparedness initiatives are targeted and communicated by the regulatory authorities, and consider how well issues of inequality and differential vulnerabilities are recognised and factored into coping strategies. The following chapter examines the concept of environmental justice and establishes its relevance for flood risk management within New Zealand.



## Chapter 3 Review of Environmental Justice

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### 3.1 Introduction

Flood risk and its management are inherently unfair due to the natural spatial inequality in the frequency and extent of flooding (Sayers, Galloway, Penning-Rowse, *et al.* 2014). Interventions to manage flood risk may, for instance, prioritise an area over alternative at risk spaces thereby creating further inequality. In recognising the natural inequalities in flood risk and the injustices imposed by flood risk management actions of the state and individuals, Johnson, Penning-Rowse & Parker (2007) suggest that the purpose of flood risk management is to manage injustices to minimise the inequalities across society. From this perspective, decision-makers should ensure flood risk management is distributed through a just process. Using an environmental justice lens, this study assesses whether places and people in New Zealand are discriminated against in the way flood risk is managed.

In order to appreciate the meaning, scope and frame of environmental justice, an understanding of its history and development is an essential precursor and is provided in Section 3.2. Early environmental justice work in the United States of America (USA) focused on how disadvantaged groups, typically racial minorities, had to bear disproportionate environmental burdens. The scope and diversity of what has become positioned within an environmental justice frame has widened from its roots in the USA, spreading into a range of new topics and countries and to broader global issues. Consequently, and as defined in Section 3.3, a relative and contextualised understanding of what constitutes environmental justice is appropriate, rather than searching for universal meaning and conformity (Walker 2012). In explaining the concept of environmental justice, this chapter validates its use for a critical appraisal of planning policy and the practice of flood risk management in New Zealand. Section 3.4 positions flooding as an environmental justice issue. Section 3.5 establishes that environmental justice has, to date, received little attention in New Zealand research and has not been specifically recognised by legislative and regulatory bodies in respect of flood risk.

There is no principle or procedure that justifies what should be the distribution of flood risk and opportunity for flood risk management. Section 3.6 establishes that justice is central to planning's distributive role and examines the principal justice concepts. Justice is not simply a matter of maximising utility, or securing freedom of choice for property owners, or of non-discriminatory practices by regulatory authorities. In order to achieve justice it is necessary to consider how justice ought to be founded; specifically, what is it that people living with the risk of flooding deserve. This requires a public culture and a planning process that are open and inclusive to discuss the disagreements that will inevitably arise. This study examines the planning processes that are in place for flood risk management in New Zealand and considers the implications for environmental justice.

Various forms of injustice are intricately linked. Schlosberg (2007: 98) aptly claims, "justice requires not just an understanding of unjust distribution, limited capabilities and a lack of recognition, but the way they are tied together in political and social processes". As Section 3.7 outlines, a comprehensive approach is essential for considering environmental justice. Distributive justice is concerned with ensuring equity in the sharing out of goods and ills; procedural justice focuses on the processes by which decisions are made, who is involved and who has influence; justice as recognition focuses on who is given respect and who is devalued; and, a capabilities approach focuses on the importance of the functioning of individuals and communities. These four components of environmental justice form the framework for this study's examination of flood risk management in New Zealand.

### **3.2 The evolution of environmental justice**

In the 1980s the USA environmental justice movement emerged as a mode of activism that drew on the civil rights struggles to embrace a just society (Agyeman, Bullard & Evans 2003). The influential study by the United Church of Christ Commission for Racial Justice (United Church of Christ 1987) found that 'minority' communities were unequally burdened by environmental harm. Their report introduced the terms of 'environmental justice' and the race-based environmental inequity of 'environmental racism'. The report advanced the claim that communities of colour and low-income people were disproportionately

exposed to environmental toxins through the siting of waste facilities in and near their communities. The early considerations of environmental justice focused on inequity in the distribution of environmental bads as an example of social injustice. Yet it also examined the underlying reasons behind the production of the maldistributions, such as exploring why minority communities were subject to a disproportionate burden. Racism has been at the centre of environmental justice discourse in the USA to the extent that some activists, such as Getches & Pellow (2002), have argued that the term and movement should be limited to communities of colour and income. In his reflection on the racialized state, Kurtz (2009: 692) argued that environmental justice scholarship ought to move beyond documenting disproportionate impacts towards investigating the “imbrication of race and racialization in the very structure and outlook of the modern liberal state.” Cutter (2006: 251), however, recognised that environmental justice has moved beyond racism to “political action and social mobilization that marshals public and private commitment to change”. The use of identity politics within environmental justice in the USA has made issues of race, class, culture and gender integral to the discourse and politics of environmentalism (Faber 2005; Bickerstaff & Agyeman 2009). From its outset the environmental justice movement also challenged the definition of environment, as it demanded that the environment be understood not as a large areas of ‘natural’ wilderness but as where ‘people live, work and play’ (Novotny 2000). In this context, Bickerstaff and Agyeman (2009) conclude that the USA environmental justice movement has been successful in building a networked environmentalism that recognises and has impacted upon national patterns of distributive inequalities.

The different framing of the environmental justice discourse is evident when a comparison is made between its conception in the USA and its application in the UK. Environmental justice became incorporated into the UK’s liberal democratic politics from the mid 1990s, emphasising solidarity based upon shared legal-political rights. It became a salient concept for non-governmental organisations, and linked to issues of sustainability and social exclusion and the delivery of procedural environmental equity. Campaigns in the UK, when compared to the USA, have been predominantly local and have failed to develop “a coherent programme of action that links to wider socio-spatial justice issues or effects real changes in the regulatory or political environment” (Bickerstaff and Agyeman

2009: 781). On the other hand, Bickerstaff & Agyeman (2009) recognise that, the greatest environmental justice advances in the USA have been made at the community level, using the power of the wider movement to focus on a local context or a definable space. Furthermore, indigenous communities around the world have embraced notions of environmental justice to protest against destructive development that threaten their cultural ways of living. The local attribute and applicability of environmental justice is of significance in this study's consideration of the injustices that may be experienced by communities living with the risk of flooding.

### **3.3 Contentions surrounding definitions**

This study draws upon the definition of environmental justice identified by Byrne (2010: 960):

Everyone has the right to inhabit clean, healthy and safe environments, and to enjoy equal access to safe and healthy workplaces, schools, recreation areas and nutritious food, irrespective of race, ethnicity, gender, class, disability and other 'axes of difference'.

Byrne's definition positions the discourse beyond the movement's early considerations where environmental injustice referred to the inequitable spatial distribution of environmental ills and benefits (Low & Gleeson 1998). This is essential as an analysis of the management of flood risk requires more than revealing patterns of distribution and necessitates considerations of process and production. Environmental justice is allied with the notion of 'just sustainabilities', labelled by Agyeman, Bullard & Evans (2003), which brings together interests in quality of life, present and future generations, justice and equity in resource allocation, and living within ecological limits. Thereby, promoting a concept of environmental justice that extends beyond socio-cultural impacts to the interactions between social and environmental communities. 'Just sustainabilities' challenges unjust practices and institutions and unsustainable environmental processes so the focus becomes the principles of environmental justice and sustainability.

Whilst the environmental justice frame has expanded beyond race, ethnicity and class to embrace a broader definition of marginality and vulnerability to include

age, gender, disability and health status as axes of difference (Walker 2009a), tensions about its parameters remain amongst scholars. Holifield, Porter & Walker (2009) outline the persisting tensions regarding the extent to which universal principles of environmental justice can be identified, or whether particular, situated understandings of the term are necessary to reflect the global diversity of materialities, values and normativities. In this regard, Sze & London (2008: 1347) question, “if environmental justice can mean almost anything, does it risk a dilution and even loss of meaning and purpose?”. They conclude that environmental justice scholarship must have at its centre-point the (mal)distribution of harms and opportunities related to the environment “with special attention to race and class” (ibid.: 1348). In contrast, Schlosberg (2013) promotes the ‘plurality’ of environmental (in)justice experiences and calls for “unity without uniformity” (Schlosberg 2007: 535).

The lack of specificity in the terminology and principles of environmental justice, Bickerstaff, Bulkeley & Painter (2009) argue, offers a level of flexibility but limits its power as a guide to policy and action. This assertion aligns with a concern expressed by Harvey (1996: 329), who asks whether it is possible “ever to talk about justice as anything other than a contested effect of power within a particular place at a given time”. Although Harvey (1996: 332) simultaneously recognises justice as “a foundational concept that is quite indispensable in the regulation of human affairs”. Such conceptual ambiguities have led authors, such as Debbané & Keil (2004) who have developed a critical engagement with urban environmental policy, to reject the search for a universal notion of environmental justice, and advocate instead an understanding that is contextually situated. In looking at case studies of flood prone communities in New Zealand, this research examines the political, economic, social and environmental networks that have created specific instances of environmental injustice.

Bickerstaff, Bulkeley & Painter (2009: 594) contend that the focus of environmental justice research, such as toxic pollution and major environmental hazards, relies heavily upon symbolic politics and powerful media icons of pollution and disaster (Harvey 1996). Consequently, they argue that the concerns of the research are misplaced, that its politics are based on an iconography of fear, and that its claims have more to do with moral outrage than the science of impacts



(Harvey 1996: 338). In focusing on New Zealand communities living with the risk of flooding, this project avoids such criticism as it addresses the way environmental risks threaten everyday life and examines persistent forms of injustice in the built environment.

### **3.4 Flooding as an environmental justice issue**

Environmental justice links the environment to social justice and axes of difference thereby reframing environmental issues as injustice issues. Within this thesis, flooding and its management is a distinct form of environmental justice. Until the devastating and highly uneven impacts of Hurricane Katrina on the city of New Orleans in 2005, flooding had not been positioned as an issue of environmental justice, despite the existence of a substantial body of research documenting inequalities and vulnerabilities to flooding (Bullard & Wright 2010; Walker & Burningham 2011). A growing body of literature in the USA, UK and elsewhere is now framing flood risks as an issue of environmental injustice, including Bullard & Wright (2010) and Walker & Burningham (2011). Although, to date, no research addressing planning for flood risk management in New Zealand uses the framework of environmental justice. The environmental justice frame has expanded to understand the experience of local communities in their vulnerability to climate change. Flooding and droughts are examples of changing environmental conditions for which environmental justice provides a framework for scrutinising the impacts on peoples' lives and how a community's functioning and development may be threatened. Holland (2012) suggests that the extension of environmental justice into climate justice creates an understanding that justice itself depends on a stable and predictable set of environmental conditions. Climate change and climate justice have pushed environmental justice to broader considerations of both the environment and justice, so that environmental justice is now also about the material relationships between human disadvantage and vulnerability, and the condition of the environment and natural world in which that experience sits (Schlosberg 2013).

### **3.5 Environmental justice in New Zealand**

Environmental justice as a specific analytical frame has been relatively sparse in New Zealand and it is not visibly present in policy formulation. The RMA provides the regulatory framework for planning and advocates the promotion of the sustainable management of environmental resources. Justice is not a word that is used in the RMA. The definition of sustainable management, as detailed in Chapter 2, reflects the priorities of neoliberal interests, with a minimalist government approach and market-based resource allocation. The RMA has a focus on an 'environmental bottom line' that encourages policy-makers to adopt precise environmental standards, with economic measures being used to evaluate planning decisions (Pearce & Kingham 2008). Wider definitions of sustainability that integrate social equity concerns are excluded from the regulatory framework and therefore environmental justice policy debates are marginalised.

By affirming a clean and healthy environment as a fundamental guarantee, environmental human rights are a way of securing environmental justice. The United Nations has recognised the case for an environmental right. In 2016 the International Criminal Court in The Hague widened its scope of its considerations, in prosecuting under the Rome Statute, to include environmental destruction as a factor in making prosecution decisions about alleged crimes against humanity. New Zealand has to date failed to recognise and provide for the right to a healthy environment in its laws. In this extent, it is lagging behind other countries. For example, the South African Constitution Bill of Rights has an environmental rights clause. Environmental justice is written into the South African National Environmental Management Act 1998, which declares that the environment is held in public trust for the people and is to be protected as the people's common heritage. The New Zealand Bill of Rights Act 1990 sets out the rights and fundamental freedoms of anyone subject to New Zealand law. The New Zealand Bill of Rights, however, does not provide for protecting the environment or people's right to live in a safe environment. Within the New Zealand Bill of Rights duty rests on the national government to provide and defend rights for its citizens. This is different to, for example, France where everyone is under a duty to participate in preserving and the enhancing the environment (Charte de l'environnement 1958).

There are proposals for a codified written Constitution for New Zealand, backing the work of former Prime Minister Sir Geoffrey Palmer. The preamble to the draft Constitution “states that the value of our society are based on [...] *kaitiakitanga* and sustainability” (Palmer & Butler 2016). The draft environmental right refers to the development and use of natural resources that is ‘ecologically sustainable’ while promoting justifiable economic and social development. It would be possible to provide this within the preamble and thus ensure that the environment is a fundamental interest of New Zealand. The draft provision, however, adopts the wording “everyone has the right (a) to an environment ...” (Palmer & Butler 2016). This is human-centred so people, not the environment or an ecosystem for its own sake, will be beneficiaries of the right.

Beyond statutes there are mechanisms that provide scope to address environmental justice issues. *Kaitiakitanga* is the process by which Māori claims regarding the condition of a people’s health and survival, as defined by the Waitangi Tribunal, meet environmental justice claims and build a bridge from environmental justice to ecological restoration. *Kaitiakitanga* embodies ecological justice in a way legal ideas have struggled to reach. *Kaitiakitanga* provides the opportunity to care for the environment not out of a sense of duty but reverence for the environment as our *kaitiaki* (guardian) and *taonga*.

Under the Te Awa Tupua (Whanganui River Claims Settlement) Act 2017 Te Awa Tupua - the Whanganui River - now owns itself and has the legal status of a natural person. Giving the River legal status and a voice to be heard or to bring legal proceedings and assert claims in its own interest signals a symbolically important change. It also starts to reassemble priorities with the environment having a more equal footing.

New Zealand environmental justice research is limited. Among the few exceptions is a study by Pearce, Kingham & Zawar-Reza (2006) who examined inequities in ambient air pollution concentration in Christchurch and identified higher levels of domestic pollution in socially disadvantaged neighbourhoods than less deprived urban areas. The results concur with prior environmental justice work in New Zealand, which found that residents of deprived neighbourhoods are

exposed to a greater number of hazardous sites (Salmond, Howden-Chapman, Woodward, *et al.* 1999) and greater public health risk from community water supplies (Hales, Black, Skelly, *et al.* 2003) than less deprived neighbourhoods. In subsequent work, Pearce & Kingham (2008) suggest that future environmental research could consider how political and economic forces in New Zealand lead to environmental inequalities. The authors call for “an improved understanding of how structural and institutional forces interact to create environmental ‘riskscapes’” (*ibid.*: 991). The term ‘riskscapes’ draws on the work of Morello-Frosch, Pastor Jr., Porras, *et al.* (2002) who recognise that socio-economic and institutional forces create ‘riskscapes’ in which pollution poses a range of health risks to diverse communities.

With its applicability and use by indigenous peoples worldwide, it is perhaps surprising that environmental justice has not been used more often within New Zealand and specifically by, or on behalf of, Māori. The ideas of environmental justice have high profile in New Zealand but its use as a framework for research has not been extensive. Identity-based claims for environmental justice have focused largely on indigenous peoples, such as research by Schlosberg & Carruthers (2010). Research undertaken by Coombes (2013), for example, examines urban Māori identities through the lens of environmental justice and asserts that revealing the processes of misrecognition addresses the invisibility of indigenous people. Implementation of the Waitangi Tribunal Amendment Act 1985 attempts to address the historical grievances of Māori. The rejection of assistance to rehabilitate a polluted waterway, a culturally important resource for the pan-Māori community of Otara in South Auckland, Coombes argues, reflects the view that urban Māori are “out-of-place” migrants whose Treaty rights to resources are weaker than those held by Māori in rural areas. Urban Māori are denied the status of *tangata whenua* and so become disenfranchised. This case demonstrates that local government authorities incorrectly interpret the RMA as though Treaty rights are the preserve of *tangata whenua*, but the Treaty of Waitangi clearly states that its rights are open to all Māori.

The challenge for policy-makers is to balance environmental, economic and social factors to be inclusive to all groups in New Zealand, as well as focusing on environmental bottom lines that sustain and preserve the natural environment. In

adopting an inclusive agenda, the question of justice to whom needs to be considered. Environmental justice research promotes an understanding of the social processes in which environmental inequalities, in this case flood risk, have become established in New Zealand. For this, it is necessary to unpack the causal interpretation and consider how political and economic forces in New Zealand lead to environmental inequalities. This requires an appreciation of the processes by which certain socio-economic groups are and continue to be exposed to flood risk whilst other groups have reduced the impacts of flooding.

### **3.6 Justice**

Prior to a comprehensive analysis of environmental justice it is necessary to establish 'justice'. Justice comprises of normative judgements about how things ought to be. Justice within dominant liberal conceptions is grounded on the maintenance of the liberty of the individual. Conversely, injustice occurs when citizens lack freedom and autonomy. The focus on individual liberty and rights has been reinforced in the neoliberal agendas in recent decades that have underpinned government policies in countries around the world. Whilst it is easy to agree with Aristotle (1104/1925) that justice is about giving individuals their dues or treating individuals as equally deserving, all theories of distributive justice ultimately discriminate (Sandel 2009: 193). In reality, some degree of inequality, difference and unevenness is inevitable within societies. Political philosopher Sandel (2011: 1303) asserts that "justice is unavoidably judgmental" and one cannot detach questions of justice and oughts from debates about the nature of the good being distributed. It is necessary, therefore, to consider how justice ought to be founded, specifically what is it that people deserve and, in the context of this study, what people living with the risk of flooding deserve.

#### **3.6.1 Justice concepts**

In the discussion about justice and flood risk management, the distribution of risk management measures and the process in which the allocation is achieved are both significant considerations. In a recent study Thaler & Hartmann (2016) consider how different concepts of justice produce alternative approaches to the distribution and allocation of flood risk management in Europe. The principal

justice concepts of utilitarianism, libertarianism and egalitarianism have implications for the principles and processes of the allocation of flood risk management and for the distribution of costs and liabilities. Table 3.1 summarises the implications of the three main justice concepts for flood risk management.

	<b>Utilitarianism</b>	<b>Libertarianism</b>	<b>Egalitarianism</b>
Allocation of flood protection measures	Differentiated flood protection standards based on cost-benefit analysis	Local & individual protection measures	Equal protection standards for all
Process of allocation	Expert based decision-making	Process of allocation is based on a market system	Consensus on general protection standards
Share of costs for flood protection	Public funding based on calculated fees	Private-private partnerships	General public budget (tax financed)
Liability of damage	Clear responsibilities & liabilities by public authorities	No compensation from public authorities; facilitating market mechanisms (insurance premiums depending on risk zone)	No specific liability, the state compensates for a flood

Table 3.1 Justice principles for flood risk management

Adapted from Thaler & Hartmann (2016: 133); copyright permission granted – open access article.

Utilitarians, advanced by the ideas of classical economists John Stuart Mill and Jeremy Bentham, claim that the morally right acts or policies are those that produce the greatest happiness for the greatest number of people. The attraction of utilitarianism is the emphasis it places on human welfare, its rejection of moral elitism and its focus on end results (Okereke 2008). Many scholars, including the American political philosophers Rawls (1971: 27) and Nozick (1974: 155), have argued that the implications of utilitarian politics are that legitimate moral claims and aspirations of individuals may be sacrificed in a bid to achieve overall maximum well-being. Employing a utilitarian approach, flood risk management would be allocated in way that promotes the greatest good for the greatest number. The rules of maximum utility maximises risk reduction per unit of input and would, through a cost-benefit analysis, lead to investment prioritising high risk areas (Johnson, Penning-Rowsell & Parker 2007).

Libertarians, usually called conservatives in contemporary politics at least on economic issues, argue for a neutral state that respects individual choice and insist that individual rights are so important that they should override welfare considerations (Sandel 2009: 219). For example, Hayek (1960) argued that government should respect basic civil and political liberties with redistributive policies that support the welfare state being a violation of individual property rights. Hayek maintained that social inequities are inevitable consequences of liberty and any attempt to bring about economic equality is coercive and destructive of a free state. Accordingly, the role of the state is to facilitate citizens in their individual pursuit of the good as conferred by the market economy, whilst ensuring that the principles of justice are upheld. A libertarian approach utilises non-governmental activities and individual rights, led by market forces, to promote adaptation to the changing climatic conditions and the increased risk of flooding.

The sacredness of property rights and individual liberty is significant when considering flood risk, as discussed in Chapter 2. Nozick's (1974) theory of justice, building upon Locke's (1690/1967) notion of property, is based on the 'sacredness' of property rights and individual liberty. Nozick rejected the idea that a just distribution consists of a certain pattern, such as equal provision of basic needs, as what matters is how the distribution arose. In his opinion, distributive justice depends on two requirements – justice in initial holdings and justice in transfer (Nozick 1974: 149-160). To this end, he distinguished between a 'historical principle', where a situation's history is utilised to assess whether a given distribution of goods is just or unjust; and the 'time slice principle', which looks at the existing distribution at a particular moment and asks if it satisfies some principles of fairness, irrespective of any preceding events (Singer 2008). This distinction is relevant to flood risk management in the consideration of who should pay for the construction and maintenance of structural flood defences; in terms of whether the onus should be on the council who permitted the development in the first place, the developer, or the existing property owner who directly benefits from the flood protection works.

For libertarians, justice means respecting freedom of choice, specifically the choices people make in a free market. In a similar vein, the liberal egalitarian view advances freedom of choice based on the hypothetical choices people would make in an original position of equality. As a liberal egalitarian, Rawls (1971) emphasises that the measure of a just society is not whether it produces virtuous citizens but whether it provides a fair framework for rights within which individuals can pursue their own values (Sandel 2007). Protecting individual rights is central to Rawls's theory of 'justice as fairness', with its belief that the right has priority over the good. Rawls set his theory of justice as a counterpoint to utilitarianism, which he accused of not taking the "distinction between persons seriously" (Rawls 1971: 27). His theory is based on the assumption that in a society composed of free and autonomous individuals there are "many conflicting and incommensurable conceptions of the good" (Rawls 1985: 160). Rawls (1971: 303) claimed that from an original position of equality, people would choose a principle of justice that guarantees that nobody is denied the basic social or primary goods that enable them to lead a meaningful life. He argued that civil and political liberties cannot be exercised without the provision of basic social and economic needs. Accordingly, he sought to combine the value of individual liberty with the idea of civic fraternity and social solidarity. For Rawls, provided basic liberties and fair equality of opportunity are guaranteed, inequalities are only justified where they are to the greatest benefit of the least advantaged (Johnson, Penning-Rowsell & Parker 2007). Libertarian and liberal egalitarians share the assumption that the government should be neutral among competing conceptions of the good life. "This idea . . . is summed up in the claim that the right is prior to the good" (Sandel 2007: 359). By maintaining neutrality, the state upholds justice by ensuring the rights of free and equal citizens to choose between different conceptions of good.

Within an egalitarian approach to justice, a society is just provided that institutions ensure equality of opportunity in the distribution of resources across society and the treatment of individuals. Prominent proponents of egalitarianism include Sen (1992), whose influential work is discussed later in this chapter. The focus of egalitarianism is the equal and fair distribution of benefits and burdens between all citizens. It promotes equal flood protection standards for all communities using tax financed protection. Accordingly, the distribution of flood



risk management strategies should be focused on the most vulnerable people and areas, such as implementing flood storages in the upper part of the catchment to protect downstream communities (Thaler & Hartmann 2016).

As has been discussed, the central conceptual framework of a justice theory is focused on how and what gets distributed in the construction of a just society (Rawls 1971; Schlosberg 2007: 13). Environmental contexts vary and justice is not an objective question, rather it is a dynamic process that requires consideration of subjectivity, including questions of responsibility. Research in the aftermath of Hurricane Katrina, such as work by Bullard & Wright (2010), focused on the functioning of New Orleans highlighting neighbourhood and community based issues. This communitarian conception of injustice confronts liberal individualist notions of justice (Schlosberg 2013: 43). The ‘communitarian’ critics of contemporary liberalism argue that individuals are encumbered with moral and political obligations. Thus, they contend that the idea of justice is inextricably bound with shared nationality, social understandings, religion or the public culture of societies (Okereke 2008). Taking a broader view, Sandel (2009) suggests that justice is about honouring and recognising, promoting and cultivating the virtues and the good implicit in social practices. Justice, he maintains, is about the right way to distribute things but also it is about the right way to value things. “To achieve a just society, we have to reason together about the meaning of the good life and to create a public culture hospitable to the disagreements that inevitably arise” (Sandel 2011: 1310).

### **3.6.2 Justice in the context of planning**

The ideals of justice are historically embedded within planning theory and practice, yet contemporary planners continue to question the conditions that are required for planning’s redistributive role. As an instrument of capitalist governance, Byrne & MacCallum (2013: 164) suggest that planning is complicit in many of the political-economic processes that create environmentally unjust outcomes. Within society at large the values of democracy, equality, diversity and efficiency often clash (Fainstein 2010). These conflicts are reflected in the choices that planners must make as they try to reconcile the goals of economic development, social justice and environmental protection (Fainstein & Campbell

2012: 9). Three principle approaches to urban justice have been developed in the last 20 years: ‘communicative rationality’, which is referred to as the ‘collaborative approach’ by Healey (2003), recognition of diversity, and the ‘just city’ or spatial justice. At the same time, planning has also become concerned with ideals of justice that are embedded in the notion of sustainability – intergeneration equity, intra-generational equity and, arguably to a lesser extent, preserving biodiversity or inter-species equity (Haughton 1999; Steele, Maccallum & Byrne 2012). This study does not propose to address all of these approaches, but focuses on the ‘just city’ as it places justice at the centre of urban policy.

The model of the ‘just city’ has been promoted by Fainstein (2010) and Marcuse, Connolly, Novy, *et al.* (2009) on the grounds that inequalities of resources and power lead to unjust planning decisions. The foundations for this concept were laid by Harvey (1973) promoting ideas of social justice and rationality as a bridge to overcome spatial injustices. Drawing upon a wide range of philosophical theories of justice, Fainstein (2010) argues that equity, democracy and diversity are the governing principles for urban justice; although, she recognises that these values may be in conflict and gives equity priority. Fainstein's (2010: 36) definition of equity as “distributional outcomes enhancing the capabilities of the relatively dis-advantaged” may be interpreted as a call for universality, where all individuals are ensured the right to decent housing, income and welfare. This is reflective of equity planning, an approach advocated by Krumholz (1982) which, in challenging the ability of traditional planning to tackle the causes of poverty and inequality, made redistribution its principal goal. The aim for Krumholz (1982) was social inclusion so that all citizens have access to the benefits of the city. White (2015) points out that paternalistic modes of decision-making could in many cases produce desirable results and be effective at offsetting inequalities. A paternalistic approach may produce desirable outcomes but through a non-democratic process.

The debate between the just city and communicative rationality approaches revolves around how much importance to attach to democratic decision-making as opposed to the differential impacts of policy. This debate, therefore, centres on a dispute over the importance of process versus outcome (Fainstein 2014). Within

communicative rationality, planners act as negotiators or mediators among various stakeholders to achieve a compromise in which all participants receive some benefit. Planning is viewed as facilitating a public dialogue to define community issues and priorities, with the focus being on procedures, such as stakeholder participation exercise, rather the outcomes. In this communicative and collaborative approach, the more public participation the better, so that participation is the goal not a means to an end. This places new requirements on decision-makers, including the gathering of evidence on a continuous basis to reflect a broad array of stakeholder views and to ensure that data does not become out of date (White 2015). In focusing on collaboration for public participation, planning runs the risk of failing to reach a reliable consensus or if an agreement is reached insufficient resources may prevent its implementation (Rydin & Pennington 2010).

As an advocate for collaborative planning, Healey (2007) sought a social process that enabled a fragmented, diverse and unequal society to collectively construct a shared vision for urban life. In more recent work, Healey (2011: 200) encourages respectful and sensitive acknowledgement of the capacity for local invention and interpretation as planners engage as a ‘community of inquirers’. In promoting planning as a form of collective action, Healey (2011: 199) refers to it as “place governance with a planning orientation”. Counter to collaborative planning, with its emphasis on democratic decision-making, Fainstein (2010) asserts that as democratic processes can lead to exclusionary practices planners whose aim is justice need to intervene in the planning process and call for policies that favour low-income and minority groups. Planners may need to intervene to help mitigate unjust positions, such as the views of a dominant group, which may skew outcomes unfairly or disadvantage marginalised groups (White 2015).

In his classic article promoting advocacy planning, Davidoff (1965) argued that unitary planning perpetuates a monopoly over planning power and discourages participation. Davidoff (1965: 423) argued that the role of the planner should be “as advocate for what he [*sic.*] deems proper”. He asserted that, if planning is to be inclusive, planners must advocate for the interests of disadvantaged groups. In a contemporary setting, and building upon the work of Davidoff, Fainstein (2014: 12) contends that “if the aim is justice, the purpose of inclusion in decision-

making is to have interests fairly represented and not to value participation in and of itself". Unlike Harvey (1973), who viewed justice as unattainable under capitalism, Fainstein (2014) believes that it is possible to embrace reform through the existing political-economic processes. Planners, accordingly, must push for just outcomes that improve the situation of the relatively disadvantaged.

The persisting challenge in planning theory, according to Fainstein & Campbell (2012: 15), is to reconcile elements of a common public interest with the diversity of different communities that live adjacent to each other. Fainstein's (2010: 55) definition of diversity as "the achievement of mutual recognition of relationally defined groups" may be interpreted as a call for particularity and for the acceptance of group-specific needs. In arguing for recognition of diversity, Fainstein draws upon the influential work of Young (1990, 2000), who argues for deliberative politics as a precondition for just redistribution. Young (2000) shares with Habermas (1984) a belief in civil society as a necessary counterforce to the state and the market. She suggests that because different people may not agree on a common concept of justice the goal should be to arrive at judgements rather than technical solutions.

In the context of climate change and increasing flooding, Steele, Maccallum & Byrne (2012: 68) argue that the imperatives of democracy, social diversity, difference and equity that underpin the 'just city' must take into account the complex links between human society and the natural environment. This examination of the 'just city' has shown that separating process and outcome is both complex and unsatisfactory when the aim is justice. Environmental justice scholarship, as the next section outlines, has refrained from this by arguing for and promoting a multivalent conception of justice.

### **3.7 Developing an environmental justice framework**

Environmental justice research on flooding has focused on identifying whether socially vulnerable groups, predominantly ethnic minorities and lower socio-economic individuals, are inequitably exposed to flood risk. For example, research undertaken by Montgomery & Chakraborty (2015) reveals that coastal areas in Florida, USA are populated primarily by non-Hispanic whites and

economically affluent residents while ethnic minorities are over-represented in inland flood zones. Research on exposure to flood risk in the UK suggests that residents of lower socio-economic groups are disproportionately exposed to flooding within coastal flood zones, but exposure to inland flood risk is generally equitable (Fielding 2007; Walker & Burningham 2011). Schlosberg (2007, 2009) has undertaken work on the 'justice' in environmental justice and concludes that it cannot be viewed as a purely distributive problem, rather the elements of *distributive justice, procedural justice, justice as recognition and a capabilities approach to justice* underlie environmentally unjust outcomes. Schlosberg (2004, 2009) asserts that the justice demanded by environmental justice comprises of equity in the distribution of environmental risk; participation in the political processes which create and manage environmental policy; recognition of the diversity of the participants and experiences in affected communities; and, an understanding of the basic needs, capabilities, and functioning of individuals and communities. Environmental justice as a concept has therefore substantially altered since it began in the USA, as impact and intent are important considerations.

The wide-ranging and integrative character of environmental justice, as delineated by Schlosberg, is embraced within this study and appropriately enables justice to be concerned with the design of the process of flood risk management, the information that is used to make decisions, and how people are involved. Using environmental justice as a framework interconnects planning, social justice and human rights, in terms of the link between the health of the environment and the health and well-being of people, as such it is an innovative way to tackle the environmental problem of flooding in New Zealand.

### **3.7.1 Distributive justice**

Distributive justice defines how people distribute rights, goods and liberties, and how people define and regulate social and economic equality and inequality (Schlosberg 2007: 12). Bell (2004: 289) suggests that a Rawlsian approach to environmental justice provides a rationale and a framework for assessing the relative importance of environmental issues in the context of competition for public spending. Accordingly, provided basic liberties and fair equality of

opportunity are guaranteed, inequalities are only justified where they are to the greatest benefit of the least advantaged. Bell (2004) suggests that there are three questions for consideration in an environmental justice claim. Firstly, who are the recipients of environmental justice? This determinant has important spatial and temporal dimensions and involves determining ‘a community of justice’. Members of the community could, for example, be countries, communities, social groups or individuals. The second question examines what is to be distributed. Benefits and burdens are relative concepts that depend upon context and evaluations. For example, seasonal flooding may be essential for agricultural practices in South East Asia. Distributive patterns of environmental burdens rely on evidence to depict what is unequal. For instance, a natural hazards map in a New Zealand district plan delineates areas of risk and provides a judgement on the level of concern. The third question looks at the principles of distribution in terms of the criteria to be applied in the distribution to, and between, members of the ‘community of justice’. This links back to the different justice concepts, outlined in Table 3.1, that produce alternative approaches for the provision and allocation of flood risk management.

In examining the injustices of flooding it is essential to look beyond the spatial patterns of environmental risk to examine who is vulnerable and how this vulnerability is produced and reproduced for different groups and communities (Walker 2009a). The notion of distributive justice as equality, in which all people, irrespective of their social and cultural differences, share equally in flood exposure and risk, is unrealistic as a justice target (Walker 2012: 150). The process of why and how certain groups of people are disproportionately represented as living with risk, such as the reasons they reside in an area prone to flooding, need to be examined across space and time. Historical settlement patterns influence the socio-demographic characteristics of populations residing in flood prone areas. The development of low-lying land for housing and the desirability of coastal living have changed over time and place. Market mechanisms may create distributive injustice. For instance, the clean-up of degraded land or the installation of flood defences may force residents on low incomes to relocate as they cannot afford to pay higher rents or associated levies. Whether planning, however, can be responsible for the injustices that arise from property markets is debatable. This demonstrates that it is not only the distribution

of the direct environmental burden, in this case flooding, that is of concern but also other dimensions of distribution that interact with burden, specifically vulnerability, need and responsibility (Walker 2012).

### **3.7.2 Procedural justice**

Procedural justice is concerned with how decisions are made, who is involved and who has influence in those decisions. Preston (2016: 416) asserts that claims about procedural justice require two questions to be addressed. Firstly, who are the members of the ‘community of justice’ to whom procedural justice is to be given? The construction of space, such as what area is likely to be affected by flood risk, is an important consideration in the determination of a just process as it defines who is included or excluded from the environmental justice process. Defining the ‘community of justice’ may become a matter of contention. For example, debate may occur within a flood-prone community as to what area should have to incur direct benefit payments when the risks and associated mitigation of flood risk extend beyond the immediate locality.

Secondly, what procedural rights are to be given to the members of the ‘community of justice’? Procedural justice focuses on the practices of government and regulation, and comprises the “fair and equitable institutional processes of a state” (Schlosberg 2007: 25). Given the ‘roll back’ of state functions under neoliberalism, however, other institutional processes and settings must also be considered, including the private sector, public-private partnerships and third sector organisations (Walker 2012). A procedural dimension of environmental justice demands that account is taken of flows and networks of power and decision-making, of which participation is a central component. Biased decision-making raises issues of procedural justice. For instance, locating landfill sites in communities that are socially disadvantaged would be unjust as they are less able to engage in the political process of site selection than communities possessing a wealth of resources and negotiation abilities. Schlosberg (2007) argues that broad, inclusive and democratic decision-making procedures are a tool, or indeed a precondition, for achieving distributive justice. Accordingly, environmental justice activists call for policy-making procedures that encourage active community participation, institutionalise public participation, and recognise

community knowledge and cultural diversity within the community (Schlosberg 2004: 522).

### **3.7.3 Justice as recognition**

The reasons for discrimination, such as stereotypes, disrespect and devaluation, are part of an environmental justice frame. Recognition, in terms of who has respect and who is denigrated, refers to dimensions of identity such as ethnicity, gender and disability. The notion of justice as recognition is derived from left-wing and feminist political philosophy which questioned the primacy of distribution in justice (Fraser 1997; Honneth 2001). Honneth (2001) argues that justice as recognition fundamentally concerns individual autonomy rather than participatory equality. He asserts that recognition is based on the psychological necessity of the authentic recognition of others, so that an individual's dignity is linked to the recognition they receive from others. Fraser (1997, 2000, 2001) recognises the dependence on the psychological state of individuals but highlights the belief that misrecognition is the failure to give recognition to individuals or communities based on social relations. Fraser (1998) identifies three processes of misrecognition that lead to the social 'status injury' often evident to indigenous peoples and cultural minorities: a practice of cultural domination and oppression; a pattern of non-recognition equivalent to being invisible; and, being routinely disrespected or maligned in public and cultural representations. Tschakert (2009), for example, addresses disrespect, assault and exclusion as key elements of injustice in artisanal gold mining sector in Ghana. The marginalisation and devaluation of unregistered miners as 'status injury' is, she exposes, an institutionalised form of misrecognition.

Special treatment is justified, Fraser (2001) maintains, if it helps people achieve equality in their ability to participate fully in society and the social sphere. Fraser's approach to justice as recognition sees redistribution and recognition as constitutive parts of a framework of justice which is based around the notion of participatory equality (Bulkeley, Edwards & Fuller 2014).

Distributive injustices, according to Young (1990), arise from social structures, cultural beliefs and institutional contexts in which there is a lack of recognition of



group differences. She accordingly rejects communitarianism as enforced homogeneity. Young (1990) upholds that recognition is not a 'thing' to be distributed, but it is a social norm that is embedded in social practice. Young (1990, 2000) asserts that, in a society embedded with structural social inequality, it is imperative to pay attention to the perspectives of specific groups in order to achieve equal living conditions and fulfil universal needs. The key concern for Young (1990: 18) is the institutionalised domination and oppression that underlies injustice and leads to vulnerability and economic inequality. She argues that democratic and participatory decision-making procedures are an element of, and a condition for, social justice (Young 1990: 23). To ensure democratic and participatory decision-making procedures, Young (2000) argues for deliberative politics. Similarly, Fraser (1997) calls for 'participatory parity' or equality of status in the political realm.

As has been shown, theorists contend that misrecognition damages and constrains individuals and communities and may lead to the production of distributive inequalities. The recognition approach puts a strong focus on understanding difference and accommodating particular needs. This is highlighted by Walker & Day (2012) in their consideration of fuel poverty as an environmental injustice. A lack of participation in the planning process by marginalised communities suggests a paucity of recognition by local authorities. Whilst public participation is actively sought in the planning process, the strategies used favour those with good financial resources, knowledge and political networks (Rydin & Pennington 2010; Byrne & MacCallum 2013). Without recognition of difference, specific needs and vulnerabilities may remain hidden and neglected when policies are formulated or in the aftermath of a flood event, which may affect the capacity of communities to cope, recover and adapt.

#### **3.7.4 Capabilities approach to justice**

The plurality and multiple spaces of environmental justice is characterised in the capabilities approach. Economist philosopher Amartya Sen pioneered the capabilities framework and it has been developed by philosopher Martha Nussbaum and a number of scholars across the humanities and social sciences. Sen (1992, 1999, 2010) and Nussbaum (2000, 2006) insist that justice should not

focus on distributive ideals but on the range of capacities necessary for people to develop free and productive lives they design for themselves. The two fundamental concepts of the capabilities approach are functioning and capabilities. Functioning is what a person achieves, in terms of both activities and states of existence, such as health, well-being and livelihood. Capabilities are the opportunities or freedoms an individual has to achieve functioning. Political participation and procedural justice are capabilities necessary to construct a functioning life. For Sen, this is achieved through public measures and deliberation, whilst for Nussbaum (2000: 80) it is “being able to participate effectively in political choices that governs one’s life”.

Capability theorists, such as Nussbaum, fail to specify who should bear the burdens and responsibilities for realising capabilities. Where the line between individual and collective responsibility is drawn, or how it will be decided and by whom, is largely absent from capabilities literature. Yet questions of obligations and responsibilities are central to an account of justice, as demonstrated in procedural justice. For Sen (1992, 1999, 2010) this weakness is not problematic as he argues against seeking a fully developed justice theory that describes a utopian ideal, but reasons for a theory that helps to make comparisons of injustice and guides decision-makers towards an unjust society.

In developing a capabilities approach to justice both Sen and Nussbaum focus on individuals. Nussbaum (2000: 74) explicitly argues against the consideration of community level capabilities, maintaining that communities serve only to support individual needs and capabilities are to be seen as the precursors of constitutional rights. In contrast, Schlosberg & Carruthers (2010: 17) maintain that environmental injustice is embedded within a community and is not solely an individual experience. Schlosberg & Carruthers (2010) support their argument for a community based, capabilities-centred conception of environmental justice via reference to evidence of the struggles of indigenous people. Similarly, Getches & Pellow (2002: 24) argue that if “the wrongs to be addressed are essential community wrongs, then communities, not individuals, can state a claim to environment justice”. In the context of climate change adaptation, Schlosberg (2012) argues that the capabilities approach can address both individual and community level needs and can develop understanding of the political, social and

cultural conditions that create and sustain vulnerability. The principle of capabilities applies to both individuals and communities at risk of flooding, as both individual and community ability to function is threatened by flooding.

Ballet, Koffi & Pelenc (2013) and Edwards, Reid & Hunter (2016) propose that the capabilities approach provides a good analytical framework for an environmental justice approach. It is difficult, however, to assess the applicability of the capabilities perspective for flood risk management as there are few instances of it being applied. Notable exceptions include the work of Schlosberg (2012), in looking at capabilities and climate justice, and Tschakert (2009), who uses the capability framework to explore spaces of recognition and participation parity in the artisanal mining sector in Ghana. The capabilities perspective has been used in assessments of vulnerability to the impacts of disasters in the developing world, such as Sen's work on famine.

Schlosberg (2007) presents justice as capabilities as a fourth category of the justice concept, although he stresses that one cannot pursue one dimension of justice in isolation as distribution, recognition, capabilities, participation and procedure are interrelated and interdependent. Alternatively, Walker (2012) maintains that the capabilities perspective can be seen as an integrative framework encompassing notions of distributive and procedural justice and justice as recognition. Walker (2009b: 205) claims capabilities has "an internal pluralism, incorporates a diversity of necessary forms of justice, rather than privileging only one, and retains flexibility in how functionings and flourishings are to be secured". It is not, therefore, a theory that explains injustices in flood risk or its management rather it is a theory that helps to conceptualise these notions.

Whilst Walker (2012) asserts that the multidimensional and dynamic nature of flooding requires such an integrative framework of justice across the flood disaster cycle, he recognises that there are challenges in relating the generality of a capabilities approach to specific cases of floods or to the national patterning of vulnerability to flood risk (Walker 2009: 205). Although Walker (2009b) asserts that if the specification of capabilities is not seen as fixed, but open to development and contextualisation, then the specific can inform the general, as well as vice versa.

A flood event diminishes the capability of individuals and communities to achieve valued functioning (Walker 2012: 151). In promoting participation in flood risk management, responsibility has shifted towards the individual being responsible for informing and protecting themselves regardless of the differential resources and capabilities they may have to achieve this (Walker 2012: 154). By focusing on capabilities, rather than resources, all functionings are potentially available to individuals, whether or not they are actually achieved. Resources, nonetheless, do matter for the realisation of functionings. The ability to prepare, respond and recover from floods are all income dependent and therefore the provision of key resources impact on welfare outcomes (Lindley, O'Neill, Kandeh, *et al.* 2011: 20). For example, low-income households are generally less able to undertake measures to make their property more resilient to flooding than high-income households. Social differentiations intersect, for example the older members of the New Orleans poor black population were the most vulnerable to the effects of Hurricane Katrina (Walker 2012: 215). Applying a capabilities approach to the distribution of being resilient to flood impacts would mean that pre-flood preparedness programmes and emergency plans would be sensitive to differences such as culture, age and capability to act (Walker 2012: 152).

### **3.8 Conclusion**

Some degree of unevenness and difference in the frequency and extent of flooding across New Zealand is inevitable. A primary purpose of flood risk management is, as Johnson, Penning-Rowsell & Parker (2007) argue, to manage injustices to minimise the inequalities of flood risk across society. Flood risk management must be distributed through a just process and this requires the deliberation of how justice ought to be founded, in respect what people at risk of flooding deserve. In a holistic approach to planning, planners try to reconcile goals of economic development, social justice and environmental protection. In doing so, as within society at large, the values of democracy, equality, diversity and efficiency often clash (Fainstein 2010).

In considering what justice should comprise of in flood risk management, it is necessary to examine issues of responsibility and the roles of stakeholders,

namely central and local government, iwi, developers and individuals, in creating and managing flood risks. Adopting a participatory planning process helps to understand the social and political process in which flood risk injustices have become established. Collaborative democratic decision-making can, however, lead to exclusionary practices. Consequently, planners need to intervene to help mitigate unjust positions and to recognise and improve the situation of marginalised and disadvantaged groups. This aligns with the assertion made by Young (1990, 2000) and Fainstein (2010) of the necessity of deliberative politics for a just distribution, and demonstrates that the decision-making processes and outcomes of flood risk management cannot be separated.

Embracing an all-inclusive approach to environmental justice emphasises the importance of the social relations of power and identity. This in turn highlights that people and communities at risk become not only vulnerable but also “citizens with rights to be asserted, achieved and protected” (Walker 2012: 149). The arguments, discourses and principles of environmental justice interlink justice concepts. Thus, Schlosberg (2007: 73) contends that “within the environmental justice movement, one cannot talk of one aspect of justice without it leading to another”. This study, in recognising the multiplicity of environmental injustices, explores the possibilities, strengths and weaknesses of flood risk management in New Zealand in terms of *distributive justice*, *procedural justice*, *justice as recognition* and a *capabilities approach to justice* – the four interlinking concepts of environmental justice. The local attribute and applicability of environmental justice for communities, demonstrated in its use by indigenous peoples worldwide, is significant when considering injustices experienced by communities living at risk of flooding in New Zealand. No research to date has addressed flood risk management in New Zealand using the framework of environmental justice. This study fills a research gap in examining the relationships between social disadvantage and vulnerability and the condition of the flood risk environment.

## **Chapter 4 Research design**

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### **4.1 Introduction**

There are many sources of evidence of environmental inequality and multiple measures by which to assess injustices. Evidence, however, is not unproblematic and facts contain implicit interpretations. As evidence by its very nature is socially constructed and produced by researchers, research must acknowledge from where its evidence comes and who is involved.

Evidence of environmental injustice can be collected and analysed in both quantitative-statistical and qualitative-experiential forms. A quantitative mode of inquiry provides a general perspective, whilst a qualitative approach aims to provide contextualisation, interpretation and understanding of social perspectives (MacDonald & Headlam 2009). Qualitative researchers consider both social structures and individual experiences. These facets are often difficult to disentangle in practice, but are critically important to delineate in explanation (Winchester & Rofo 2010: 5). Consequently, qualitative research tends to emphasise multiple meanings and interpretations rather than seeking to impose one correct interpretation. In considering patterns of vulnerability to flooding and the ability to cope, recover and adapt, qualitative studies provide a useful form of empirical analysis. Walker (2012: 219) calls for qualitative, experiential and participatory research methods that interact better with procedural and recognition dimensions of environmental justice than quantitative-statistical forms. Accordingly, this New Zealand study embraces a qualitative approach, although it incorporates an element of quantitative inquiry. A mixed methods approach is supported by Flyvbjerg (2006) who asserts that quantitative and qualitative methods work best together as not only are they complementary but in practice it is difficult to separate the two.

### **4.2 Ethical approach**

A mixed methods approach embracing both quantitative and qualitative modes of inquiry was undertaken in accordance with the ethical principles set out by the University of Waikato. Ethical approval was obtained from the Human Research

Ethics Committee (see Appendix I). The researcher proceeded with sensitivity and a commitment to ensuring that the research activities were consistent with the spirit and intent of *Te Tiriti O Waitangi*, the Treaty of Waitangi.

Ethical concerns are fundamental to the discipline of planning. Planning is founded on the premise that intervention and action will produce better space and place-based outcomes than would otherwise be the case (Campbell 2012). Planning involves making choices in contexts that are often characterised by complexity and uncertainty. Similarly, ethics is concerned with debating choices and practical judgement.

### **4.3 Positioning the researcher**

When considering the use of qualitative research methods, it is important to reflect on who is the researcher and how their identity will shape interactions with others. This is reflective and recognises the researcher's own position. Making both the researcher's position and the research itinerary explicit is an important step in negotiating the power and politics of representation (Dowling 2010).

It is imperative to acknowledge that I, the researcher, am an educated British person who is permanently resident in New Zealand. I moved with my young family to Hamilton, Waikato in 2012 from the UK and thus I may be considered an 'outsider' to the case study communities. I am enrolled as a doctoral student in Environmental Planning at the University of Waikato. In this study I am drawing together my interest in environmental justice with previous work experience and academic studies in planning and environmental law. During previous work in the development consultancy sector, I was involved in the management of planning and environmental projects in the UK. I do not have prior experience in flooding or its management and I have limited knowledge of Māori issues. I appreciate that to fully understand and be involved with research that draws on and is influenced by Māori perspectives requires a lifelong engagement.

### **4.4 Research aim**

The aim of this study is *to critically analyse the environmental justice implications of the planning policy and practice of flood risk management in New*

*Zealand*. As Chapters 2 and 3 have demonstrated, issues of decision-making, responsibility, power and the role of the state in protecting people from the impacts of flooding are relevant for environmental justice, as they engage with the existing inequalities and injustices that create vulnerabilities and lead communities living at risk from flooding to achieve different levels of coping and resilience. This study addresses a gap in academic research of the environmental justice implications of the way flood risk is managed through the planning system in New Zealand. This thesis moves through the four concepts of environmental justice - *distributive justice*, *procedural justice*, *justice as recognition* and *a capabilities approach to justice* - to examine the New Zealand situation of flood risk management. It looks beyond distributive spatial inequity to consider injustices in the social inequality of flood risk exposure and differences in vulnerability to the impacts of flooding.

An outline of the research strategies and methods used for this study are provided in Table 4.1 and are addressed in turn.

#### **4.5 Objective 1**

Objective 1: *To evaluate the theoretical relationships between risk, environmental justice and flooding*. A review of key literature in both the international and New Zealand setting, detailed in Chapters 2 and 3, reveals the scope of living with risk within contemporary Western societies, the discourse of environmental justice, and planning's remit for flood risk management. A literature review shows an awareness of the existing work undertaken in the area, identifies key issues and gaps in existing knowledge, and illustrates which theories and principles shape the approach adopted in the research (Denscombe 1998: 158). For this study, literature was drawn from academic writers in the form of peer reviewed journal articles, textbooks and conference proceedings, reports prepared by the New Zealand Crown Research Institutes of the National Institute of Water and Atmospheric Research (NIWA) and GNS Science, reports from government agencies and research bodies, and papers prepared by consultants. Accordingly, the literature review develops the research position and it assists in justifying findings within the context of both existing and new work.



Aim	Objectives	Strategies & Methods	Data Sources
To critically analyse the environmental justice implications of the planning policy and practice of flood risk management in New Zealand	(1) To evaluate the theoretical relationships between risk, environmental justice and flooding	Desk-based literature review	Academic books, journal articles, papers from research agencies & government bodies, consultants' reports
	(2) To outline and evaluate the planning frameworks which operationalise flooding and environmental justice in New Zealand	Review strategic planning legislation, Government guidelines & national policies for flooding	Legislation, planning regulatory tools, and strategic guidance prepared by Government
	(3) To interrogate the environmental justice implications for people at risk from flooding in New Zealand	Three case study communities within Thames Coromandel district, Waikato	Review of publically available regional policy statement and district plan
			Flood hazard maps & contextual demographic data from 2013 census statistics & NZDep2013 index of deprivation
			Interviews with local planners & policy-makers
			Questionnaire circulated to local residents
(4) To propose how planning for flood risk management within New Zealand could improve the consideration of environmental justice		Preparation of findings & recommendations	Interviews with local residents Extrapolating from analysis of primary data

Table 4.1 Research strategies and methods

## 4.6 Objective 2

Objective 2: *To outline and evaluate the planning frameworks which operationalise flooding and environmental justice in New Zealand.* A desk-based appraisal of the New Zealand legislative framework and an analysis of regulatory planning tools, including national guidelines and strategic standards, form the exploratory work for Objective 2. A review of the responsibilities, roles and frameworks informs the analysis of the political and legislative process of planning for floods in New Zealand. Flood risk management comprises of a devolved approach of management to local government in which local risks are the responsibilities of local authorities. Managing flood risk takes places within the wider context of emergency management and sustainability. Statutes allocate roles and responsibilities across central government, local government and communities. Local government uses a variety of structural and non-structural methods and emergency strategies to manage flood risk, which are aimed at reflecting the local contexts and are responsive to the local conditions. Consequently, a variety of flood risk management methods are used in different areas. This investigation explores the extent Government regulation is being replaced by individualisation, in which the onus is on individuals to know and mitigate their own risk.

In this study documents are treated as a source of “data in their own right” (Denscombe 1998: 159). The strengths of using documents in research is that they are stable and can be reviewed repeatedly, they are unobtrusive as they are not created as a result of the case study, they are exact and provide broad coverage (Yin 2014: 106). Whilst documentation does have weaknesses, such as biased selectivity and reporting, these limitations are reduced for this study as legislation and strategic planning documents are legally prepared and are widely accessible.

Drawing upon a qualitative content analysis approach as outlined by Krippendorff (2013) and Cope (2010), the theoretically significant and meaningful items were extracted from the published documents. Krippendorff (2013: 170) states that “an analytical construct accounts for what the content analyst knows, suspects, or assumes about the context of the text, and it operationalises that presumption procedurally in order to produce inferences from that text”. It is, thus, important

that the analyst has knowledge of the context to ensure that valid conclusions are drawn from the plans and policies. The researcher's background in planning and environmental law was utilised in this process.

#### **4.7 Objective 3**

Objective 3: *To interrogate the environmental justice implications for people at risk from flooding in New Zealand.* This is guided by a case study approach, which provides a local perspective for the project and enables an in-depth evaluation of the environmental justice implications for people living at risk from flooding in New Zealand. It seeks to understand the processes, practical issues and outcomes of the existing flood risk management strategies developed by the regional and district councils for the local residents within the study area of the Thames Coromandel district.

The decision to use a case study approach was a strategic one that related to the scale and scope of the investigation. A case study approach is suitable for studies that examine 'how' and 'why' in real life contexts, where the focus of the study is contemporary and the researcher has little control over the events being studied (Yin 2014). It allows the researcher to collect data from multiple sources using a variety of techniques and enables cross-referencing and comparisons to be made between the carefully selected areas. Unlike research based on samples, the case study keeps the attention focused on contexts. Baxter (2010) notes that it is not the number of case studies that is relevant, for one or two carefully chosen and well-structured cases can produce robust, credible and trustworthy theoretical explanations that are transferable in the analytical sense.

As with all research projects, it is necessary to recognise limitations inherent within a chosen methodology. Flyvbjerg (2011) identifies three weaknesses of the case study as a method - selection bias may overstate or understate relationships; weak understanding of occurrence in population of phenomenon being studied; and statistical significance are often unknown or unclear. In this instance the case study material sits alongside and is supported by a review of national and international documentation. The case study's strength of developing depth and understanding of context and process validates its choice for this research project.

#### 4.7.1 Case study

Case selection and the definition of specific measures are important steps in the design and data collection process. It is imperative for case study research that the selection of cases are justified (Denscombe 1998: 33). In this instance, selection was based on the grounds of suitability, in that Thames Coromandel district is exposed to fluvial flooding, surface water inundation and coastal flooding. A ‘weather bomb’ event that occurred in June 2002 and a major flood event in April 2003 emphasised the urgent need to address flooding and catchment management issues for communities on the Thames coast, the western side of the Coromandel Peninsula. Governmental agencies came together to undertake flood mitigation works in five settlements on the Thames Coast at Coromandel Town, Tapu, Waiomu-Pohue, Tararu and Te Puru. The work under the umbrella of ‘The Peninsula Project’ involved co-operation and funding from Thames Coromandel District Council (TCDC), the Department of Conservation, the New Zealand Transport Agency, central Government, Waikato Regional Council (WRC), iwi, local communities and ratepayers. ‘The Peninsula Project’ addressed river and erosion issues from the mountains to the sea by integrating flood protection, river and catchment management and animal pest control. The flood mitigation projects have included stopbanks, floodwalls, channel protection works and regular stream maintenance. Whilst these physical works may have reduced the impact of future flood events for some settlements, the risk of flooding for the wider Coromandel Peninsula continues with storm damage from extreme weather conditions and sea level rise likely to intensify. With local government attention and resources focusing on ‘The Peninsula Project’, this research study considers the needs and concerns of other local communities within the Thames Coromandel District that are identified as being at risk of flooding. It provides an opportunity to scrutinise the involvement of individuals in flood risk management decision-making.

On a pragmatic basis the study area is conveniently accessible for the researcher. The Thames Coromandel district, in the region of Waikato (see Figure 4.1), is within two hours drive from the cities of Auckland and Hamilton. The volcanic spine of the Coromandel Peninsula is covered in expansive bush wilderness. Its edges offer rugged coves and sweeping golden beaches making it an attractive living environment and holiday destination. Consequently, the Coromandel

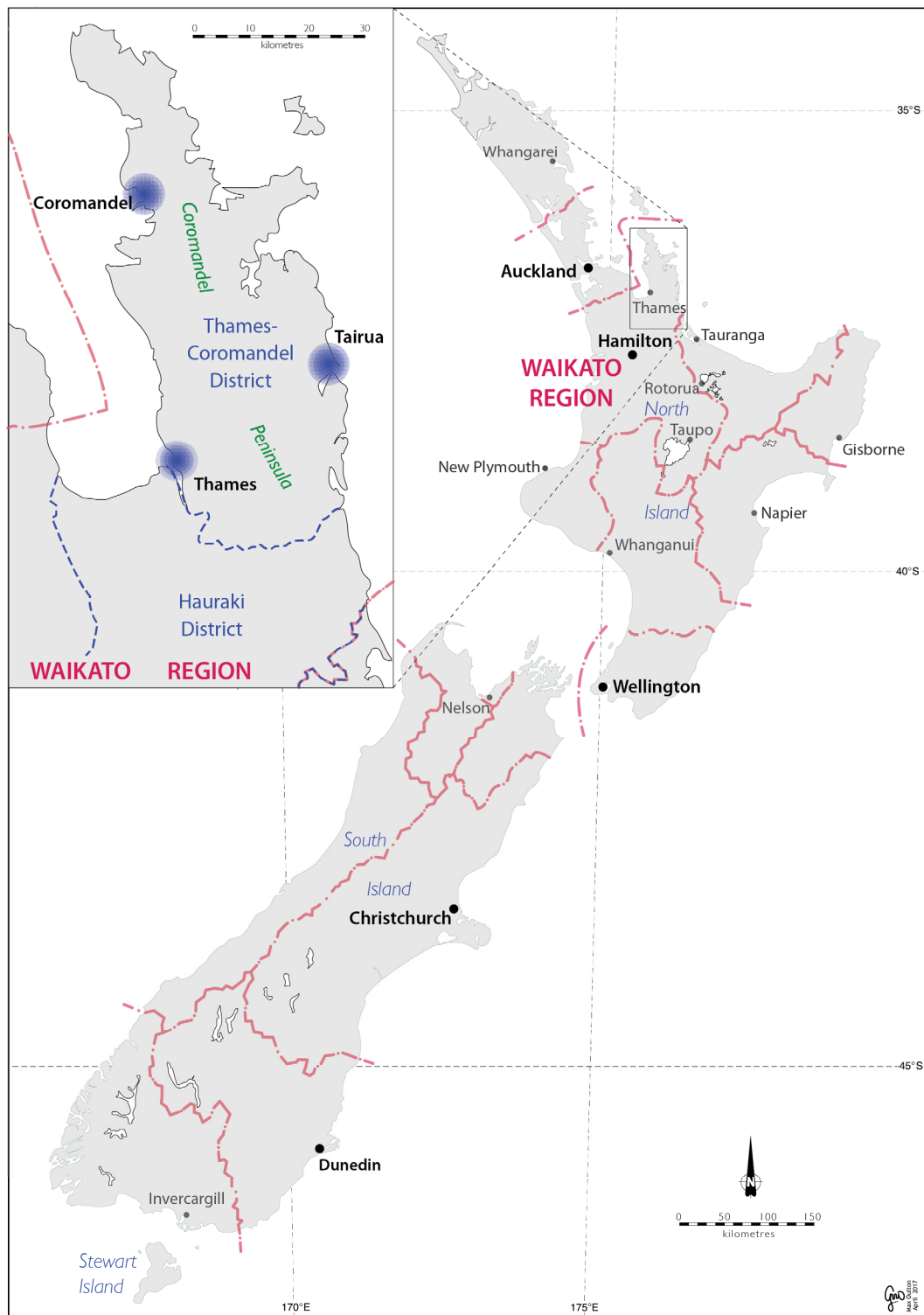


Figure 4.1 Location map of case study area

Peninsula is under continuing development pressure. Despite its high proportion of non-residential population, the communities within the district are highly engaged in local issues, such as opposing mining, and contain spatially different, socio-economically and culturally diverse communities.

Floods in Thames Coromandel Peninsula can take an hour to occur because of the steep short catchments that produce very high peak flood flows and can result in the movement of tonnes of debris, gravel and sediment. The vulnerability to flash flooding events makes the time for any necessary response very short. In addition, the Peninsula is vulnerable to coastal floods that can be caused by storm surges, with the biggest floods occurring when king tides and storm surges occur at the same time, sea level rise and tsunamis. Coastal flooding is more likely to occur in the low-lying areas around the Firth of Thames and eastern Coromandel Peninsula settlements than elsewhere on the Peninsula. This study focuses on fluvial flooding and not coastal inundation, which presents a significant study in itself.

Three towns - Thames, Tairua and Coromandel Town - were chosen by the researcher for detailed analysis, on the basis of their different sizes and extent of flood mitigation strategies, and variability in community demographics and affluence. During interviews with WRC and TCDC representatives these three towns were highlighted as being illustrative of flood risk management involving community participation in the decision-making process, different local contexts and outcomes. Following the advice of local government representatives in the selection of case study towns mitigated the possibility of selection bias by the researcher and ensured that the occurrence of flood risk and vulnerability within these communities were suitable to be examined.

### ***Thames***

In Thames, WRC has for over two decades installed and maintained hard flood defences as part of the Waihou Valley flood scheme. The latter provides river and catchment infrastructure on the eastern side of the Hauraki Plains and Thames Valley enabling land to be farmed. Details of the flood mitigation works in Thames are provided in Chapter 6. The structural protection will inevitably shape the community's flood risk perceptions. As the largest settlement in the district Thames has a demographic diversity in age, social status and affluence, with

residents primarily working in tourism and locally owned businesses servicing the local farming community.

### ***Tairua***

In Tairua, residents in the Graham's Creek catchment have faced the threat and impact of flood events for over two decades. WRC has recently undertaken flood mitigation works in 2015-2016, providing a research opportunity for data collection at the end of an extensive period of negotiations and discussions with local government representatives, iwi and the local community. As a visitor destination the town attracts tourists, weekenders and retired people, which may generate a variation in the perception of risk amongst residents.

### ***Coromandel Town***

In Coromandel Town, WRC has recently undertaken flood mitigation works, although the full extent of Council recommended works were not undertaken, which warrants investigation in itself. Coromandel Town is a popular holiday destination and the main industries are tourism and mussel farming, creating differences in affluence between permanent and weekend residents.

## **4.7.2 Review of regional policy statement and district plan**

In order to understand the policy framework for flood risk management, a desktop analysis of the relevant regional policy statement and district plan for the case study area was undertaken in late 2015 prior to the collection of primary data. Plan quality evaluation functions as a 'learning process' in that it enables researchers and practitioners to review the effectiveness of policy and guides future processes of policy and plan making (Berke & Godschalk 2009). Berke & Godschalk (2009: 229) suggest that two conceptual dimensions should be used in plan quality evaluation. Firstly, internal plan quality that includes the content and format of key components of the plan needed to guide land use in the future. Secondly, external plan quality that accounts for the relevance of the scope and coverage to reflect stakeholder values and local circumstances to maximise the plan's use and influence. In this study, the initial desktop exercise in evaluating plans for environmental justice awareness focuses on the internal plan quality;

whilst, the case study investigation provides the opportunity for greater consideration of external plan quality.

During the course of the case study research both the proposed and the operative district and regional plans were examined to ascertain the most up-to-date flood hazard information and policies. The Thames Coromandel Proposed District Plan took effect on 29 April 2016 (Thames Coromandel District Council 2016), but until appeals are settled some provisions of the Operative District Plan (Thames Coromandel District Council 2010) remain in force. Those parts of the Proposed Plan that are not subject to appeal can be ‘treated as operative’ and these include policies and objectives on natural hazards specifically river flooding and flood defences. The flood hazard maps dated December 2013 were used within this study, rather than those dated July 2016 (Proposed District Plan – appeals version) as the latter plans became available online subsequent to the mapping exercise being undertaken. The second generation Waikato Regional Policy Statement became operative on 20 May 2016 (Waikato Regional Council 2016c) and promotes a regionally consistent approach to managing natural hazard risks. The contents of district plans and regional policy statements, including flood policies and objectives, are justified in Section 32 analysis reports. Risk mitigation plans prepared for Waikato Regional Council are of limited use due to their age, such as the Flood Risk Mitigation Plan, Environment Waikato Technical Report 1997/13 and the Coastal Flooding Risk Mitigation Plan, Environment Waikato Policy Series 1999/06. The review of plans sits alongside, and provides a necessary foundation for, the data collected from interviews with local government representatives and planning practitioners.

#### **4.7.3 Flood hazard maps and contextual demographic data**

In order to establish who is living in ‘at risk’ spaces within the case study areas, a spatial pattern of flood risk was completed with the help of a Cartographer at the University of Waikato. GIS was used to relate the spaces indicated on the Thames Coromandel Proposed District Plan maps (dated December 2013) as being at flood risk with social characteristics of the population at risk of flooding. As outlined in Chapter 2, previous studies on patterns of vulnerability to flood risk, for example Fielding & Burningham (2005) and Walker & Burningham (2011) in



the UK, have focused on patterns of social class and deprivation. National studies of environmental inequalities in New Zealand have been undertaken, such as research by Pearce & Kingham (2008) that compared air pollution calculations to socioeconomic measures derived from the New Zealand census.

In a first exercise, begun in February 2016, an index of social deprivation was related to flood risk exposure from river sources, not coastal inundation. Atkinson, Salmond & Crampton (2014) provide a neighbourhood measure of social deprivation using the 2013 New Zealand Deprivation Index (NZDep2013). The NZDep2013 combines nine measures from the 2013 New Zealand census that reflect eight dimensions of material and social deprivation - communication, income, employment, qualifications, owned home, support, living space and transport. The indices of deprivation provide an alternative measurement of disadvantage to income levels as they incorporate a number of additional components of deprivation and social exclusion rather than just income. NZDep2013 provides a deprivation score for each mesh block in New Zealand. Mesh blocks are geographical units defined by Statistics New Zealand and are the smallest area aggregation available for spatial analysis. A mesh block contained a median of approximately 81 people in 2013 (Atkinson, Salmond & Crampton 2014: 7). The deprivation score ranges from 1 to 10 where 1 represents the areas with the least deprived scores and 10 the areas with the most deprived scores. NZDep2013 is designed to measure relative socio-economic deprivation not an absolute socio-economic deprivation. Therefore, 10% will always fall into the most deprived decile (Atkinson, Salmond & Crampton 2014: 16). Consequently, the researchers recommend use of the wording “areas that have the most deprived NZDep scores rather than the most deprived areas” (*ibid.*: 15). Flood zones do not coincide with the outlines of the meshblocks.

In a second exercise, commenced in April 2016, social data from the New Zealand 2013 census for median age and median household income are related to flood risk exposure. Median age and median household income were used because questionnaire respondents and resident interviewees identified these two categories as indicators of vulnerability to flood risk within their communities. Whilst this exercise helps to reveal the overall aggregate patterns of distribution and inequality, a number of factors contribute to create and enhance vulnerability.

It is, therefore, difficult to spatially portray the variable causes of vulnerability using specific indicators.

#### **4.7.4 Interviews with local government representatives**

Semi-structured interviews with local government representatives, specifically planners and policy-makers, for the regional and district councils were conducted to examine the local institutional processes and mechanisms of flood risk management. The aim of an interview is to conduct a conversation with a purpose (MacDonald & Headlam 2009), so selecting the key people to talk to and the format of the interview was critical. Semi-structured interviews enabled the researcher to ask pre-determined questions to interviewees in a systematic and consistent order which deeply probed the topic (Dunn 2010). Yet these focused interviews had the flexibility to be adjusted to individual circumstances, which allowed the discussion to go beyond the originally planned themes and topics. Similarly, they provided the opportunity for participants to justify their answers in their own words, which produced valuable insights. In this way, the interviewee was an ‘informant’ (Yin 2014) rather than a respondent. Yin (2014: 113) cautions that interviews should be considered only as ‘verbal reports’ as they can be subject to bias, inaccuracies resulting from poor recall or inaccurate articulation. Accordingly, as in this study, it is reasonable to corroborate interview data with information from other sources.

In this specific instance, the interviewees needed to be informed about planning for flood risk management in the case study areas. In order to select participants at a regional and district level, an initial conversation with a key informant at the respective council was undertaken to ascertain who would be the most appropriate contact given their roles, responsibilities and recent involvement in flood risk management projects. Thereafter, a list of council staff was drafted with their contact details. The contact details of the practitioners are publically available.

Sixteen interviews took place between July and November 2015 with eight regional council staff, five district council staff, an independent consultant and two local politicians, as detailed in Table 4.2.

<b>Level</b>	<b>Representative</b>
Regional Council	2 Team Leaders 1 Senior Policy Adviser 1 Senior Regional Hazard Adviser 1 Senior Emergency Management Officer 1 Regional Hazard Adviser 1 Regional Division Manager 1 Regional Area Manager 1 Regional Councillor
District Council	1 Strategic Relationships Manager 2 District Area Managers 2 Senior Policy Planners 1 Deputy Mayor
Practitioner	1 Independent planning consultant
Iwi	1 Ngati Hei Representative

Table 4.2 Interviews with policy-makers and decision-makers

Each interviewee was approached by email or a phone call to gain their support and agreement to participate. An information sheet (see Appendix II) was sent in advance to potential interviewees for their consideration on whether to participate in an interview. The information sheet advised the reader that the interview would be held in the interviewees' work offices or in a public meeting room, and was likely to last no more than one hour. It also stated that due to their professional position, it would be impractical to offer anonymity to the policy-makers and planners interviewed; although their name would not be disclosed in the course of this research, an occupation title or position may be used. Written consent (see Appendix III) was obtained from the participant before the interview commenced. The interview guide, outlining a list of issues and questions to cover (see Appendix IV and V), was informed by the prior desktop study of literature and regulatory planning documents, and drew upon recent survey research (Lawrence & Quade 2011; Saunders, Beban & Coomer 2014b).

The interviews varied in length from 30 to 60 minutes. Each interview was audio recorded, with no interviewees requesting otherwise, and notes were taken by hand as a useful resource to refer to during transcription. Prompt transcribing of the first interview enabled any necessary amendments to be made to both the questions and interview style before subsequent interviews took place.

Transcriptions from the interviews were circulated to the interviewees for their confirmation that they were a true and correct record of the discussion. Any changes highlighted by the interviewees were adjusted before analysis commenced.

#### **4.7.5 Interviews with iwi**

Iwi representatives and council liaison officers were identified as being key informants for this project. In spite of numerous and different approaches many contacts were unwilling or unable to be interviewed and only two interviews took place in March and August 2016 (see Appendix VI). Whilst the researcher sought advice and assistance from within the University, only limited success was achieved. In part this may be explained by the heavy workload that iwi representatives currently have with Treaty settlements and demands from many agencies for iwi opinions. Added to this is the researcher's position as an 'outsider', which limited her personal connections and affiliations to establish and connect with willing participants. Secondary data sources were therefore used to harness and bolster knowledge.

#### **4.7.6 Questionnaire to local residents**

To ascertain residents' risk awareness and behavioural responses to flood risk, primary data was gathered by the use of a questionnaire to local residents followed by semi-structured interviews. A questionnaire based method of research can produce both quantitative and qualitative information, depending on how they are structured and analysed (MacDonald & Headlam 2009: 35). In this research, a social survey was deemed appropriate given that the sample sizes were reasonably small and the results were not expected to be representative of the wider population. In order to measure the attitude and behaviour of local residents to flood risk, a well developed questionnaire is important (Kellens, Terpstra & De Maeyer 2013). Given that this study on the environmental justice implications of planning for flood risk management is not replicating a previous study completed in New Zealand or internationally, it would be neither possible nor appropriate to reuse a standardised questionnaire. Whilst some questions were adapted from other work, primarily Quade & Lawrence (2011), the majority were written to fit

the specific needs of the project. This is in line with Kellens, Terpstra & De Maeyer (2013: 35), who state that “most researchers in flood risk perception studies develop their own questions”.

The cross-sectional survey used ‘area sampling’, in that participants were selected and invited to participate according to their residential address. The questionnaire employed a non-probability method as it was not the aim to create a statistically representative sample but rather to provide adequate coverage of criteria. In this instance, residential dwellings vulnerable to existing flood risks but which may not necessarily have been flooded previously and properties straddling the outer limits of the ‘at risk’ contours. The sampling frame was retrieved from Council prepared Thames Coromandel Proposed District Plan maps (dated December 2013) demarcating flood hazard zones. Google maps were used to identify the residential addresses, specifically the house numbers and street names, that are positioned within the hazard zones. The flood hazard zones have been published in publically available documents and consequently many residents were already aware of them. Three groups of participants were sampled in the Thames Coromandel district: residents from Coromandel Town and Tairua, where the regional and district councils have recently undertaken flood mitigation works, and Thames, where the councils have for over two decades installed and maintained hard flood defences.

Within the three communities, 487 residential properties were identified as being located within a flood risk, as demarcated on the flood hazard maps of the Thames Coromandel Proposed District Plan. A postal survey was chosen because residential addresses identified the potential respondents. This mode of distribution was advantageous in terms of cost and coverage, and beneficially the responses were not shaped by the presence of an interviewer. Of those flood risk properties, 136 had no postal address or letterbox to receive mail and therefore had to be excluded from the survey. A total of 351 questionnaires (see Appendix VII) were posted to the identified households in November 2015, comprising of 64 questionnaires to Tairua, 269 to Thames, and 18 to Coromandel Town. The questionnaire asked about the residents’ awareness of flooding within a local area, however it did not identify specific properties or localities. An information sheet (see Appendix VIII) outlining the nature and purpose of the study and

guaranteeing the use of confidential and ethical procedures, was sent to each household with the questionnaire form. To maximise the response rate, conversations were had with a Community Board representative to introduce the research and alert the communities to the conduct of the questionnaire. Discussion with a representative of the local special interest group, Tairua Ratepayer and Residents Association, also took place. Additionally, a reply-paid envelope was included in the mail-out, and the questionnaire was printed on coloured paper to distinguish it from other mail. It was hoped that interest in the topic itself, the previous debates and local media coverage within the community would motivate people to participate. Ultimately, as with many projects, the research was limited by people's willingness to take part. To maximise the response rate the questionnaire was hand-delivered by the researcher in late January and February 2016, following the holiday season, into the mailboxes of all non-respondent households.

The questionnaire aimed to be concise, and when undertaken in a sample exercise took approximately 15 minutes to complete. The majority of the questions were short and simple, and of a pre-coded and prompted nature. The choice of language and words used was appropriate to ensure full understanding of the questions and to encourage complete responses. Preliminary piloting of the questionnaire with a sub-sample of the target population ensured that the potential for misunderstanding was minimised and that questions were precise and unambiguous in nature. The sub-sample population was selected through the local special interest groups, who comprise of actively involved community members but who may not be representative of the community. The information sheet specified that an adult resident in the household, preferably the owner(s) or tenant, should complete the form. Asking tenants to forward mail onto the owner could have been problematic and may well have led to many forms going missing. More importantly, tenants are part of the resident population and therefore their views and knowledge are important aspect of this environmental justice research.

#### **4.7.7 Analysis of questionnaire**

A total of 74 questionnaire responses were received by March 2016, which equated to an overall response rate of 21% (a 28% response rate for Tairua, 19% for Thames and 28% for Coromandel Town). This accords with expected postal survey response rates (MacDonald & Headlam 2009). The sample is not representative of the local population, but when analysed alongside qualitative data produces a highly useful dataset in the context of flood-prone areas. The questionnaire sought to determine attitudes and opinions of local residents living in 'at risk' spaces, and helped to identify and classify the logic of different responses. The closed questions were pre-coded on the questionnaire and analysed by collating the frequency of responses to each of the questions. This was done manually using a frequency table to analyse descriptive statistics. The quantitative ratings allowed comparisons to be made among specific groups in the communities and between areas. The variability in opinions identified across the questionnaire participants provided the groundwork for further investigation through the complementary research method of interviews.

#### **4.7.8 Interviews with local residents**

Data from the questionnaire provided a framework for the interviews, in which key themes, concepts and meanings were teased out and developed. Interviews were conversational and informal in tone. The participants for the interviews were selected in the first instance through the completed questionnaire forms. At the end of the questionnaire form, respondents were asked to provide their contact details if they were willing to be interviewed face-to-face. To encourage greater participation in the interviews, a 'snowball' recruitment technique was utilised with initial contacts being asked to suggest other people who may have an interesting opinion or evidence to share (Hay 2010). In the case of Tairua, a local special interest group – the Tairua Residents and Ratepayers Association also helped to identify potential interviewees.

An information sheet (see Appendix IX) was sent by email or post to potential interviewees for their consideration on whether to participate in an interview. It specified that the interview would be likely to last no more than 45 minutes.

Email or telephone calls were used to arrange suitable times and a safe and convenient location, such as a local library meeting room, for the interviews. The questions were pre-tested on a subset of residents to ensure that the questions were not ambiguous, problematic or difficult to understand (see Appendix X). Written consent (see Appendix XI) was obtained from the participant before the interview commenced and when preference was for a telephone interview verbal consent was given prior to the interview commencing. Thirty-one interviews were conducted between November 2015 and March 2016 (see Table 4.3).

<b>Community</b>	<b>Representative</b>
Thames	18 local residents
Tairua	12 local residents including Chairman & 3 members of Tairua Ratepayers & Residents Association
Coromandel Town	1 local resident

Table 4.3 Interviews with local residents

Each interview was audio recorded, as no interviewees requested otherwise, and notes were taken by hand as a useful resource to refer to during transcription. In undertaking the interviews it was important to respect the opinions of the local residents, to be sensitive to different views and to the on-going relationships between the participants and the local authority.

#### **4.7.9 Analysis of interviews**

In qualitative responses, the richness comes in the respondents' experiences and perceptions of their locality as multiple understandings of risk coexist within communities, as explained in Chapter 2. In performing content analysis on the transcripts of the interviews this study drew upon the work of Dunn (2010). Manifest content analysis, which assesses the surface content of the transcripts, was undertaken first, followed by latent content analysis, which involves searching the transcripts for themes. The analysis of the transcripts from the interviews did not use a computer-based analysis tool. The process of coding was applied to reduce the quantity of the text and organise the data into a manageable form, as well as aiding the substantive process of data exploration. Coding was approached in a qualitative manner focusing on 'descriptive codes' and 'analytic



codes’, as outlined by Cope (2010). Matters of confidentiality were adhered to throughout the data analysis.

#### **4.7.10 Analysis of data - environmental justice implications**

Pivotal to the research design are the four elements of environmental justice - *distributive justice, procedural justice, justice as recognition and a capabilities approach to justice* (Schlosberg 2007, 2013; Walker 2012). The study looks beyond an assessment of “where patterns of inequality are most problematic and where they matter most” (Walker 2012: 215), to examine how and why they are produced. Table 4.4 illustrates the analytical framework.

Procedural justice is concerned with how decisions are made, who is involved in the decision-making process and who has influence in those decisions. Chapter 5 investigates central government leadership, planning and emergency management collaboration, the roles and responsibilities of regional and territorial authorities, iwi as stakeholder, and community participation in the process of flood risk management. In analysing the process of how decisions are made in a risk-based approach the study looks at the strategic planning cycle. It reveals the prioritisation of vulnerability of place and the determination of flood risk through flood modelling. It recognises the complexity inherent in identifying residual risk and coping with uncertainty, and it outlines the opportunity for contesting the decision-making process. The process of flood risk management is examined through a procedural justice lens to establish the ‘community of justice’ and their procedural rights.

Chapter	Justice concept	To establish	Considerations
5	Procedural	Who the members of the 'community of justice' are to whom procedural justice is given	Who is involved and who has influence in flood risk management decision-making
		What procedural rights are given to the members of the 'community of justice'	To analyse the process of how decisions on flood risk management are made in a risk-based approach
6	Distributive	What environmental benefit or burden is being distributed	The scope and extent of flood risk in three case study communities
		The recipients of the environmental injustice	Who are living in 'at risk' spaces, in terms of population demographics and vulnerability to the impact of flooding
		The principle of distribution	How areas of risk are prioritised; pressures and influences that promote action; and, cost considerations that create inequality in distribution
7	Recognition	Who is given respect in the process of flood risk management	Exposing the deficiencies of public participation at the local level
		Which knowledge is valued in the process	Consider difference in access and power between social groups
8	Capabilities	Social considerations in flood risk management	Evidence of misrecognition
			Social aspects of vulnerability
			Individual risk perception and awareness
			Household flood risk mitigation behaviour
9	An integrated environmental justice framework	Recommendations	Community resilience and sustainability
			Propose how planning for flood risk management could improve the consideration of environmental justice

Table 4.4 Analytical framework

An analysis of distributive injustice focuses on the distribution of difference and the unevenness of flood risk and its management. The first step in Chapter 6 is to identify the environmental benefit or burden that is being distributed. The risk of flooding is focused primarily on spaces in close proximity to rivers, coastline and other water bodies, although increasingly surface water inundation is becoming problematic, particularly in urban areas. The second step is to ascertain who is living in these 'at risk' spaces and to examine the patterns of the distribution of exposure to flood risk in terms of its relationship to social deprivation, income and age. This approach looks at inequality through a geographical lens and identifies variation that is shown in spatial terms. The third step is to analyse the principle of distribution by establishing what criteria is used or should be used for distributing the responsibility of flood risk management and for the entitlement to receive assistance.

A consideration of justice as recognition requires the scrutiny of who is given respect and who is or is not valued in the process of managing flood risk. Accordingly, Chapter 7 focuses on how community based, participatory research is incorporated into the process of flood risk management in the case study area. It considers the differences in access and power between and within social groups. This generates the issue of whether structural processes of bias and discrimination exist. The cultural value of land and waterways is an important aspect for Māori in New Zealand and demands consideration of how and who is best placed to judge what is valued in the process of flood risk management.

In embracing a capabilities approach to environmental justice it is necessary, in Chapter 8, to examine the social considerations within flood risk management policy and practice, and determine whether an assessment of the vulnerabilities and adaptive capacities of the local population is undertaken by local government representatives.

## 4.8 Objective 4

Objective 4: *To propose how planning for flood risk management within New Zealand could improve the consideration of environmental justice.* As discussed in Chapter 3, justice is a moral concept that is seen in western contexts as enabled by equitable distribution, recognition, equal participation in procedures and equal capabilities. Four dimensions of justice – *procedural, distributive, recognition and capabilities* - have been identified in literature and used to examine the planning policy and practice of flood risk management in New Zealand. In the preceding four chapters, flood risk management has been examined under the four notions of environmental justice separately, yet each one is intricately linked to the others making it an artificial division. Building on this analysis, in the form of developing layers of evidence and knowledge, a set of recommendations is constructed in Chapter 9. In drawing the findings together, the recommendations aim to improve the planning processes and outcomes for flood risk management in its consideration of environmental justice.

## 4.9 Conclusion

The research design addresses the four elements of environmental justice - *distributive justice, procedural justice, justice as recognition and a capabilities approach to justice* - through evidence gathering and empirical analysis of planning for flood risk management.

A mixed methods approach comprising quantitative and qualitative modes of inquiry was undertaken, in accordance with the ethical principles set out by the University of Waikato. A review of key literature informed Objective 1 in its evaluation of the theoretical relationships between flood risk management and environmental justice. The foundation for Objective 2 involved an appraisal of the legislative framework and an analysis of strategic planning policy for flood risk management. To address Objective 3 a case study approach enabled an examination of local government approach to flood risk management, specifically the Waikato Regional Council and Thames Coromandel District Council. A review of the regional policy statement and district plan was used as the preliminary tool to assess the environmental justice awareness of contemporary flooding policies and planning practices. Evidence of inequality in flood risk

distribution was analysed through an examination of Thames Coromandel District Council prepared flood hazard maps and contextual demographic data obtained from New Zealand's 2013 census statistics and the NZDep2013 index. Interviews with local planners and decision-makers enabled an examination of the local processes and mechanisms for flood risk management. Primary data was also gathered through a questionnaire and interviews with local residents to examine individuals' awareness and resiliency to flood risk and their points of view. An analysis of the collated data underpins Objective 4, and was utilised to inform a set of recommendations that propose how planning for flood risk management within New Zealand could improve the consideration of environmental justice.

This research will make a contribution to the understanding of environmental justice implications of flood risk management in New Zealand, in terms of planning policy and practice. Whilst there is an established body of knowledge on the global environmental injustices of climate change little, if any, work has been done on the environmental justice of flood risk management in a New Zealand context.

## Chapter 5 Procedural Justice

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### 5.1 Introduction

In considering the procedural justice of flood risk management in New Zealand, this chapter analyses how decisions to manage and protect areas and communities at risk from flooding are made and by whom. Procedural justice is concerned with how decisions are made and who is involved and who has influence in the process of decision-making. Procedural justice depends on the “fair and equitable institutional processes of a state” and its institutions (Schlosberg 2007). The aim of this chapter is to understand how structural and institutional forces interact to create environmental ‘riskscapes’ which pose unequal risks to communities (Pearce & Kingham 2008: 991). The literature review, in Chapters 2 and 3, has shown that is important to consider in what ways flood risk policies and regulations knowingly or unknowingly contribute to patterns of inequality or injustice. There are different interpretations of ‘what is just’ so that environmental decision-making involves normative politics. Broad, inclusive and democratic decision-making procedures are a precondition for achieving procedural justice, in that all people within communities ought to have the equal opportunity to be involved in environmental decision-making. This chapter also considers the practices for participation in flood risk management.

Whilst the need for procedural fairness and public participation is reflected in planning instruments, environmental justice does not have a high visibility in policy formulation in New Zealand. As demonstrated in Chapters 2 and 3, the environmental justice framework does not appear within the principal statutes relating to flood risk management nor is it specified within district plans. It is therefore not a concept that is overtly discussed or measured. To ascertain the procedural justice implications of flood risk management in New Zealand, this chapter establishes who is involved and who has influence in the process of decision-making for flood risk management, and investigates how decisions to manage flood risks are made. In assessing the procedural justice of the flood risk management process two issues need to be addressed:

- i. who are the members of the ‘community of justice’ to whom procedural justice is to be given; and,

- ii. what are the procedural rights that are given to the ‘community of justice’ members?

Section 5.2 of this chapter examines who is involved and who has influence in flood risk management decision-making. In doing so, Section 5.2 scrutinises the leadership role central government maintains, flood risk management’s position between planning and emergency management, the roles and responsibilities of regional and territorial authorities, the involvement of iwi as stakeholder, and the opportunities for community participation.

Section 5.3 analyses the process of how decisions on flood risk management are made in a risk-based approach. This section focuses on the opportunities for monitoring flood risk policies within the strategic planning cycle, an assessment of vulnerability of places and the determination of flood risk through flood modelling. It highlights the problems associated with identifying residual risk and coping with uncertainty of risk, and discovers how this may lead to legal challenge. Evidence suggests that there has been a shift from a consultation exercise by regulatory authorities to a participatory approach of community involvement, as authorities recognise that it is beneficial to start dialogue with communities living at risk of flooding early in the process of flood risk management. Whilst a collaborative approach is being incorporated into plan-making and project design, officials expressed uncertainty at how to effectively achieve a collaborative approach and avoid legal challenges.

Section 5.4 provides a detailed assessment of the process of flood risk management through a procedural justice lens. Section 5.4.1 establishes the ‘community of justice’ and determines who has a right to participate. In Section 5.4.2 the procedural rights that are given to the ‘community of justice’ members in flood risk management are determined through four measures: the availability of, and access to, environmental information; inclusion in policy-making and decision-making processes; inclusion in community-based participatory research; and, access to legal processes for challenging decision-making.

As outlined in Chapter 4, evidence for this chapter is informed by a case study approach using data collected from interviews with local government

representatives, planning professionals and local residents, alongside a review of planning policy. The key secondary data sources for this case study analysis are the statutes, national guidance and strategic standards (Standards Australia/Standards New Zealand 2009), the Waikato Regional Policy Statement (Waikato Regional Council 2016c) and the Thames Coromandel Proposed District Plan (Thames Coromandel District Council 2016).

## **5.2 Who is involved and influence flood risk management decision-making?**

This section establishes central government leadership and the roles and responsibilities of local government in managing flood risk. It examines the opportunities for iwi and community participation in decision-making, and scrutinises their ability and power to influence.

### **5.2.1 Central government leadership**

Central government has an important role in assisting local government with its devolved function of flood risk management and in guiding local government action to improve councils' abilities to use non-structural planning measures to reduce exposure to flood risk. A common theme in discussions with local government representatives was the need for strategic oversight to ensure clear policy direction and strong guidance on key areas. A regional council representative suggested that it would be beneficial for central government to establish how risk-averse New Zealand should be.

Hopefully central government will provide some guidelines on where we want to be as a nation in terms of our risk appetite. Auckland's Unitary Plan is setting the scene for what the appetite is for hazards. The more guidance we have and the sooner we get it the better (Interviewee 6).

This aligns with risk management as a normative undertaking which seeks to establish what ought to be done and how safe is safe enough (Doorn 2015). In this context, interviewees endorsed the proposed amendment to the RMA to elevate natural hazards to Section 6 'matters of national significance', as a regional council representative explains:



Natural hazards will have to be taken into account every time there is an application regardless, which is great. Before it was an after-thought and hazards were downplayed. Now hazards will be on a par with water quality and air quality (Interviewee 14).

The impact of the Resource Legislation Amendment Act will become apparent with time. The ambiguity of terminology and the meaning of the provision ‘the management of *significant risks* from natural hazards’ [emphasis added] as a matter of national importance in Section 6 of the RMA will ultimately be tested through the Environment Court.

Councils require greater national direction and guidance that helps them respond to local issues rather than a one standard fits all approach. Interviewees emphasised that guidance on process from central government, in terms of how to effectively manage flood risk, is lacking. For example, a regional council team representative argued:

We do need national guidance for minimum standards or acceptable risk for different hazards, so to say that it is not acceptable to build any residential development in an area where it may be subject to damage during a 1 in 100 year flood (Interviewee 12).

The level of tolerability and acceptability of flood risk for specified land-uses ought to be established at a national level, thereby providing clear processes and parameters for planners. This would provide a minimum standard of tolerability with variation above that minimum according to local circumstances.

Clearer national direction on the processes and implementation of legislation is required than already exists. For example, all legislation should deliver the same requirement for a 100-year time frame for flood risk. As highlighted in Chapter 2, using the Building Act as a basis for decisions on housing applies a structural design life of only 50 years. A regional council representative advised that:

The Building Act becomes the de facto planning standard when really it is supposed to determine the insurability and appropriateness of how buildings are built. It is not supposed to control where they are built, but it does get used for that. We need to get clear national direction that that is not what the Building Act is for (Interviewee 12).

Inconsistencies in the application of legislation may lead to new developments being unnecessarily and avoidably exposed to vulnerability of future flood risk. This would have procedural injustice ramifications for future property owners and occupants, in terms of why some developments have a 100-year time frame for flood risk and in other buildings a 50-year return period has been applied to flood floor level, as required in the Building Act. A lack of national guidance can create unevenness in the application of legislation leading to differences in planning standards between local authorities.

Managed retreat or realignment as an adaptation option to flood and coastal risk is an example of a sensitive issue that in the view of all interviewees requires clear central government leadership. Respecting principles of justice may increase the acceptability of managed retreat to ‘at risk’ communities and, at the very least, would guide how discussions take place between government and the public. Planned retreat from the floodplain or coast by removing people from hazard prone areas would lead to a reduction in risk. A regional council representative asserted that:

Managed retreat, whether it is flooding or coastal erosion or sea level rise, is a national issue. I just don’t think that district and regional councils are equipped to deal with it . . . It is where we need to be heading unless we plan on putting defences around the whole of the coast of New Zealand (Interviewee 13).

The problem of sustainability and prohibitive costs of continuing with structural defences against a moving target was repeatedly highlighted in interviews. One regional council representative queried: “How long can we maintain the status quo before a decision needs to be made to withdraw and say your suburb is not tenable or sustainable anymore?” (Interviewee 14). Only a few councils in New Zealand have considered managed retreat from the floodplain as an adaptation option for sea level rise. Hawkes Bay Regional Council, for example, has indicated its preference for progressively restricting land-use activities nearer to the coast. Section 5.3.5 discusses the opposition that arises to such an approach. A managed retreat of 78 houses in a floodplain took place in 2008 as part of Project Twin Streams in Waitakere City in the Auckland region. This project was successful because it linked the managed retreat to wider community goals; it focused on positive communication and had the finances for land purchase.

Notwithstanding the success in Waitakere City, opposition from New Zealand citizens, largely by private property interests, to retreat from flood-prone areas makes it unlikely that local government will advance it unless it is strategically presented (Manning, Howden-Chapman, Lindsay, *et al.* 2011). A number of interviewees were, however, sceptical that leadership would come from central government in the near future. For example, a regional council representative explained: “Whether that happens at a national level is doubtful – I don’t think it will because it is politically too sensitive” (Interviewee 14). Managed retreat raises difficult challenges connected to the nature of historical development and existing power relations. A regional council representative highlighted:

You are talking about areas that are seen as the region’s economic backbone from a farming perspective so you are suddenly saying that your \$x million farm is worthless because we are no longer going to remove the water and so you won’t be able to farm this area (Interviewee 10).

Nevertheless, the effects of climate change will ultimately force conversations between local government and communities about managed retreat. Using the precautionary principle within a risk management framework, as advanced in the RMA, councils have to take a precautionary approach to deal with the whole community and people who may subsequently move into the area. To ensure just procedures take place, discussions with the wider community need to start in the early stages of consideration of managed retreat from coastal areas and floodplains. An aspect of justice pertinent to the effects of climate change concerns the moral duties owed by the current generation to future people and the rights future generations have. The concepts of inter- and intra-generational justice are central to sustainability. They probe the limits of managing a flood risk now and in the future and question the responsibility and priority assigned to property rights.

The use of the precautionary approach is an important element of the RMA context and underpins the CDEM. The shared purpose of planning and emergency management in flood risk management and their combined efforts towards flood risk reduction are examined in the next section.

### 5.2.2 Planning and emergency management collaboration

Managing flood risk takes place within the wider context of emergency management and sustainability. In a risk-based approach, a planning officer's role is to lead and implement the risk governance process in collaboration with emergency management officers and to facilitate public and stakeholder engagement and participation. The emergency management officer's role is to ensure that reduction, readiness, response and recovery planning needs are being met and to participate with land use planners to ensure consistent risk reduction objectives and policies (Saunders 2012: 158). If effective risk reduction is to be achieved, outcomes of risk management objectives and policy formulations should be consistent in both land-use and emergency management policies and plans. There is, however, no explicit relationship between land-use plans and CDEM Group plans, which demonstrates that the principle of integration is not well applied in flood risk management between and within different tiers of government. RMA planning and CDEM operate in silos rather than working collectively (Local Government New Zealand 2014).

Scholars, such as Saunders, Forsyth, Johnston, *et al.* (2007) and Glavovic, Saunders & Becker (2010a), have recognised a need to prioritise risk reduction measures and a failure to realise the full potential of the RMA. Planning and emergency management approaches have, however, been slow to converge. Limited resources and cost implications are barriers to increasing the integration of risk reduction between the two agencies. In the opinion of a district council representative: "They [Civil Defence] seem to be quite protective of what their role is and maybe quite rightly so given that they have pretty light resources" (Interviewee 8).

The benefit of a good working relationship between the CDEM team and planning officials was acknowledged in interviews. A district council representative stated:

Civil Defence, in acting as first line responders and having to deal with on the ground issues, bring perspectives to bear that planners might miss . . . First hand experience of flooding is essential for policy-making and granting resource consents (Interviewee 9).

The contribution emergency management can play in risk avoidance was highlighted by a regional council representative. “Emergency management is the low hanging fruit that isn’t being picked at the moment” (Interviewee 12). This suggests that emergency management procedures, such as flood warning systems, are a cheaper and faster option to implement than building structural defences, which only provide protection to a small area of the community to the design level of the works undertaken. By comparison, communication on flood warning provides the opportunity to raise flood risk awareness across the wider community. Emergency management therefore offers the opportunity for equality in delivery, thereby advancing procedural justice, so that all communities that have been identified as being at risk from flooding have flood warning systems in place.

Government policy has promoted the devolution of responsibility for flood risk reduction from central to local government so that the emphasis is on local authorities taking responsibility for local matters. The next section looks at the interconnection between the two tiers of local government for flood risk management. At the local level, flood control is under the remit of regional councils, whilst territorial authorities are responsible for local services, such as storm water management, and control the subdivision and use of land through district plans.

### **5.2.3 Regional and territorial authorities’ roles and responsibilities**

The division of roles and responsibilities for flood risk management between regional and territorial authorities is not firmly established in legislation. Under the RMA, regional councils are required to provide broad direction and a framework for resource management in their regional policy statement, thereafter district councils prepare district plans to govern land-use in their districts. This creates the potential for different ‘riskscapes’, in terms of variations in organisational arrangements for flood risk management across New Zealand. A regional council representative admitted: “We get through it, it is a bit rough and ready. It’s not that clear” (Interviewee 7).

The split in land-use planning responsibilities for risk management between regional and district councils creates a difference in approach to flood risk management. An independent natural hazards consultant stated:

While you have got one organisation [regional council] responsible largely for scientific and structural and another [district council] that is, at the end of the day, solely responsible for decision-making about land use; I think it is always going to be difficult to balance your outcomes (Interviewee 5).

A regional council representative acknowledged that: “We [the regional council] have the luxury of looking at it purely from a hazard perspective whilst they [district councils] also have to look at development areas and balancing other issues” (Interviewee 12). The use of the word ‘balance’ in both these quotes highlights the application of judgement in the councils’ considerations. The following example of political pressure to permit new development is a case in point. A regional council representative warned:

There can be a perceived conflict of interest as district councils get development fees, and then are they going to turn down a big development on a floodplain? But, by building their floor levels up, the natural hazard could be manageable (Interviewee 14).

A precautionary approach would refuse consent for development on a floodplain as it is not sustainable. Raising a building’s floor levels in an attempt to manage flood risk endorses a short-term approach that may expose future property owners to unnecessary flood risk and subsequently could be considered an unfair procedure.

Regional practitioners feel constrained by their limited scope for implementation, as the avoidance of flood risk through planning controls and land-use allocations is a district plan matter. A regional council representative stated:

It is a real problem for us as we feel that avoiding the flood risk through planning controls is the best long term approach for managing it, but as a flood protection department and as a regional council we don’t have control over that instrument and we have to implement it via TAs [territorial authorities] through their district plans (Interviewee 12).

District plan provisions for flooding differ within regions as districts adopt different approaches, and the application of decision-making on a case-by-case

basis at the district level does not deliver consistency across a region. Communities at risk from flooding may consequently feel aggrieved at the inequalities in outcomes.

The necessity of advancing a regional approach has, however, been recognised in the Waikato Regional Policy Statement (Waikato Regional Council 2016c). Section 13.1.2 states that the Regional Council will identify primary hazard zones to address intolerable risk in consultation with key stakeholders and these shall be recognised and provided for in regional and district plans. In addition, Section 13.2.2 states that regional plans shall control any use or development within the identified primary hazard zones. A regional council representative explained:

Our feeling is that we need to be a little bit more proactive about advocating a regional approach so we need to be clear about what we are going to do on climate change, residual risk and about our roles and responsibilities for hazards in general (Interviewee 14).

Little interaction on flood risk management is apparent between district councils, unless the flood risk or river catchment is near the district boundary. A district council representative stated: “In terms of actually collaborating with other districts we haven’t done that at all . . . Except of course at a Civil Defence level because our Civil Defence area includes other districts” (Interviewee 4). Whilst the aim is an integrated regional and district ‘all hazards’ approach to planning, integration between agencies ultimately depends on clear and positive communication to minimise overlaps and gaps in functions. The shortfall in collaboration has been recognised in the Waikato Regional Policy Statement and, consequently, a Waikato Regional Hazards Forum has been established to promote organisational integration and information sharing across jurisdictional and plan boundaries and to further good practice (Waikato Regional Council 2016b).

How communities at risk relate to local government is an important factor when considering justice in the process of flood risk management. Evidence suggests that local communities often remain unclear as to the respective roles of regional and territorial authorities. This is demonstrated in the following excerpt from an interview with a local resident from Tairua:

They make it clear they are two separate entities. ... They are very quick to say oh that is nothing to do with us you will have to talk to WRC about that or talk to TCDC about that . . . They played off each other (Tairua resident 3).

In this regard, a district council political representative identified a need for “better collaboration between district and regional councils before we get to the point of dealing with locals at a ground level, coming in with a combined response rather than being in different spaces” (Interviewee 16). The internal management structure within the district council is also of concern and causes confusion for local residents. For example, in the issuing of consents for flood mitigation works such as channel maintenance and dredging, “They [the district council] actually apply for consents within their own organisation, they apply to themselves to do work which is absolute nonsense” (Tairua resident 3).

Residents’ responses demonstrated that there is a local level desire for one authority responsible for flood risk management. “We would prefer it to be the responsibility of the local council because they are the ones on the ground and they are the ones that know the area. They have the local input and involvement with the community” (Tairua resident 9). This suggests that for communities to be appropriately involved in the processes they need to be informed about and understand the different roles and responsibilities of regional and territorial authorities in managing flood risk.

In a combined working arrangement, regional and territorial authorities undertake the management and funding of flood risk management in consultation with local communities and with the support of iwi, enabling adaptive approaches to be responsive to local situations. The following section considers the role iwi have as a stakeholder in the decision-making process of flood risk management.

#### **5.2.4 Iwi as stakeholder**

Sections 6(e), 7 and 8 of the RMA, as outlined in Chapter 2, give responsibilities for resource and environmental management to regional and territorial authorities to fulfil and make provision for Māori input into decision-making. Protection of the environment is essential for Māori for both present and future generations. An



iwi representative explained in an interview: “Iwi will definitely be like watchdogs *kiatiaki* – making sure of the health and wellbeing of *Papatuanuku* [the land, mother earth] to be able to accommodate the human impacts that we all enjoy in this beautiful place” (Iwi interviewee 1).

Iwi management plans are developed and approved by iwi to address resource management issues within their *rohe* (region). These plans are legislatively required to be taken into account by the regional council in their management of the region’s natural resources, providing a formal way for iwi interests to be incorporated into the regional and territorial authorities’ decision making. The Hauraki Iwi Environmental Plan (Hauraki Māori Trust 2004), covering the Thames Coromandel Peninsula, focuses on seeking to restore catchments as an effective buffer against flooding. In practice local authorities balance a number of competing interests, in which iwi management plans are one part.

Whilst the RMA intends to provide a high level of participation for iwi, there is a strong body of contemporary evidence to suggest that existing provisions for Māori representation and engagement are not being used as effectively as they could be. This is exemplified by Greensill (2010: 89) who states:

What is written in the act, how it is interpreted and implemented in practice has not met the expectations of *Tainui* [a tribal confederation of four principal related iwi of the central North Island] . . . The rhetoric and reality of environmental planning outcomes for *Tainui* under the RMA are still poles apart and in need of rapid improvement.

Ryks, Wyeth, Baldwin, et al. (2010: 40) assert that in reality Māori are largely excluded from the majority of RMA decision-making processes. Consequently, there is a tendency for Māori engagement to be based on a “token form of consultation” (Simmonds, Kukutai & Ryks 2016). The comments made by an iwi representative support this assessment:

We [Iwi] will work with Council as best we can . . . but whether we get listened to or not that ends up in the Environment Court because our *waahi tapu* [places sacred to Māori in the traditional, spiritual, religious, ritual or mythical sense], our places, our sites of significance do not

mean much to a landowner and developer. That is probably where the rub of it is for us (Iwi interviewee 1).

Much of the partnership in natural resource management between local government and iwi depends on the willingness of local authorities to fulfil their obligations with Māori and for Māori to be fully supported, resourced and empowered to effectively participate in RMA processes. As Chapter 7 exposes, the nature of how engagement processes are undertaken with iwi has implications for procedural justice and justice as recognition.

### **5.2.5 Opportunities for community participation**

The RMA requires avoidance or mitigation of natural hazards, but responsibility is devolved to local communities to understand, identify and manage these risks (Glavovic, Saunders & Becker 2010: 683). The pivotal role of the community is highlighted in the following quote from a regional council representative: “We [the regional council] will identify the hazard at certain levels and it needs to be managed across the whole spectrum of risk, but how that community chooses to manage it is more up to them” (Interviewee 12). Flood hazard information prepared by the regional council for district councils and communities is available to all property owners or potential owners. Members of the public commonly seek and pay for this information when they are purchasing property or are planning new development. A district council representative advised that:

It tends to come through LIMs, people asking about property information, and through resource consents when people are going to start building. For existing houses and hazard areas, there is not that much on-going education (Interviewee 4).

In this instance the information is provided through one-way communication as individuals do not have an opportunity to contribute to the ‘expert’ knowledge compiled by local government agencies. Community members have the opportunity to participate at two stages of the flood risk management process: in plan-making, and during discussions about and the design of local flood risk management projects.

Firstly, community engagement occurs in plan-making and the preparation of flood risk policies. As a regional council representative stated:

They [local residents] can have quite a lot of influence depending on when and where they put that in the process [of the Plan Review] . . . However, it takes a lot of time on their part and it can be quite costly. A lot of people probably choose not to be involved or they don't hear about it, despite the Council making considerable effort to get people involved (Interviewee 7).

Whilst public participation is sought in plan-making it favours people with good financial resources, knowledge and political networks (Byrne & MacCallum 2013). A district council representative is of the opinion that:

Whilst our processes are open to submission it depends on how well those processes are communicated, so that people are aware of the opportunity to submit and are also well informed about what the impact of not submitting might be (Interviewee 8).

For example, individuals or stakeholders may submit an objection to the proposed plan resulting in the proposed wording being altered and this amendment may be to the detriment of other interested parties who did not make a submission. To ensure procedural justice occurs local government needs to go beyond providing opportunities to engage communities but actively seek out opinions from a wide cross-section of the community.

The need for improved engagement with communities is being recognised by regional council staff; however, uncertainty remains as to how this will actually occur. A regional council representative expressed hesitancy:

We are in a new framework at the moment, in more of a collaborative style of working. How that is going to pan out I'm not sure as yet . . . Community consultation like that is extremely expensive and we have quite a strong directive from our Executive not to go down the full collaborative approach for this Plan Review (Interviewee 7).

As demonstrated in the second sentence of the quote, the financial and time resource implications of better engagement with communities are evidently of concern to some regulatory authorities.

Community support is particularly important if changes in plans or the prioritising of structural measures impinge on private property rights. Private property owners seek to safeguard their interests and are predominantly concerned with site-

specific issues. An independent natural hazards consultant cautioned that: “Largely communities are private property based interest so ‘what I can do to minimize my risk and maximize my land value’” (Interviewee 5). Long-term interests in community resilience and sustainability are hard to achieve as they clash with short-term development interests and private property rights. This suggests that there is the potential for the flood risk management process to become swayed by particular interest groups, such as private property owners, and implies that procedural justice for one social group may disadvantage others and the interests of the wider community and future generations.

At a second stage, councils engage with communities during discussions about and the design of local flood risk management projects. Inclusion in community-based participatory research offers procedural justice. Evidence, however, suggests that although opportunities exist, participation by individuals living at risk from flooding is low. For example, the questionnaire sent to local residents in the case study communities revealed that only 18% (n=17) of respondents had participated in Council organised meetings or workshops to discuss flood risk in their locality. This low level of participation, as an aspect of personal flood mitigation behaviour, warrants investigation and is discussed in Chapter 8.

Saunders & Becker (2015: 3) assert that “when undertaken with an engagement strategy to include communities in determining levels of risk, risk-based planning provides a decision-making framework that is robust, transparent and acceptable to the community”. Section 5.3 analyses the process of how decisions on flood risk management are made and highlights when and how engagement with communities takes place. Thereafter, Section 5.4 examines whether the policy-making and decision-making processes of the risk-based approach endorse broad, inclusive and democratic decision-making procedures thereby achieving procedural justice.

### **5.3 Analysing how flood risk management decisions are made**

Section 13.1.1 of the Waikato Regional Policy Statement (Waikato Regional Council 2016c) endorses a risk-based approach for natural hazards in the management of subdivision, use and development of land. As discussed in

Chapter 2, the risk-based management approach has conventionally been based on the numerical assessment of probabilities of events and the magnitude of negative consequences (Klinke & Renn 2002: 1074). In recent years, however, there has been a shift in New Zealand and internationally, from a technical approach that deals with objective risk assessment and focuses on the probability and magnitude of events, to an integrated approach which brings attention to social aspects, such as improving flood preparedness and response in communities (Kellens, Terpstra & De Maeyer 2013: 25). Positioning flood policy and practice as a risk-based approach that has to be lived with and managed is in line with wider sustainable development and resilience agendas. This section looks at the detail of how decisions on flood risk management are made in New Zealand's risk-based approach.

### **5.3.1 Opportunities for monitoring flood risk policies within the strategic planning cycle**

The continual cycle of strategic planning by local government provides an opportunity for on-going analysis and evaluation of the councils' responses to flood risk. Under Sections 32 and 35 of the RMA, councils are required to monitor the efficiency and effectiveness of the provisions in their plans, as well as monitoring natural hazards. Monitoring and review involves continual checking, supervising and observing to determine the suitability, adequacy and effectiveness of actions to identify whether a change is required in order to achieve the stated objectives and policies (Standards Australia/New Zealand 2009). Monitoring and subsequent policy evaluation is necessary to ensure continual improvement of the risk-based approach. Such evaluation ensures that new policies and risk reduction methods are achieving the anticipated risk management objectives and it enables the assessment of future progress. Environmental, economic, social and cultural effects are all relevant considerations in a Section 32 evaluation report of changes to flood risk policy. Arguably, environmental justice implications can be incorporated into this assessment. For example, if planners are to advance the sustainable development of communities, the distributive impact of flood risk policies requires deliberation, in terms of whether policies heighten existing inequalities in the vulnerability of flood risk.

The planning policy process is highly incremental, in that policy-makers start with the policies they inherit then look for ways of improving them (Shaw & Eichbaum 2008). New information and knowledge may challenge the contents of an operative plan. Ideally, planning policies and processes should be flexible and adaptable to enable alterations to be made to accommodate new information and knowledge. Saunders, Beban & Coomer (2014), however, revealed that only 10% of district plans and no regional policy statements in New Zealand have a clear process for the inclusion of new or updated hazard or risk information. The assessment or designation of flood risk areas identified on flood hazard maps in district plans may not, therefore, include the latest available knowledge. As the plan-making process involves and informs communities at risk of flood, incomplete knowledge is a procedural problem resulting in the people living at risk lacking access to the full flood risk information that is available.

Plan changes can make improvements to risk reduction policies within the operative plan, however undertaking a plan change is a costly process in time and resources for a council. Likewise, the legal process of plan review is a lengthy process and often fraught with contestation. A regional council representative stressed: “In order to produce a plan can take us a number of years and it can end up in Court and we can argue about lines on maps and words on pages and all sorts of stuff” (Interviewee 7). The pressure on staff to finalise land-use plans can result in a shortfall in monitoring. A district council representative stated:

The whole business of the political pressure to get a district or regional plan out there is great so that monitoring is something that just seems to fall off the end. I know MfE are trying to get more on top of this (Interviewee 9).

This quote indicates that it may be politically more rewarding to launch a new plan than undertaking monitoring to evaluate planning policies.

A lack of monitoring of the efficiency and effectiveness of flood risk policies and objectives was evident from the interviews conducted with both district and regional council representatives. A district council representative admitted that:

Our monitoring has not been a primary focus whilst we have been working on the Proposed District Plan. That’s something we will have to

look at in the near future, as to what factors we will be monitoring to see if the objectives and the policies are the right ones (Interviewee 3).

A district council representative, who was directly involved in drafting the Proposed District Plan, remarked: “I expect that monitoring is something that happens sporadically . . . I am pretty sure it will happen, it is just that we haven’t really developed those measures yet” (Interviewee 4). The Resource Legislation Amendment Act addresses this shortfall, as Section 35 of the RMA has been amended to require councils to monitor the efficiency and effectiveness of the processes they use.

Ideally plan writing and the process of monitoring the specific policies and objectives should be developed in tandem to ensure the effectiveness of the adopted approach and of the plan itself. This was recognised by a regional council representative who was managing the Regional Policy Statement Review, who stated:

There will be an implementation work stream that asks how do we monitor what we actually do and how do we monitor the effectiveness of our plan. At the moment, for the current plan we didn’t set that in place and so we have had to go back and do it retrospectively, and we haven’t done it for everything (Interviewee 7).

Monitoring needs to be thought of as a systematic on-going process rather than a one-off exercise. Interviews revealed that the management structure within local government departments does not aid the monitoring process. A regional council representative advised that:

The monitoring people are put into silos within an organisational structure, so you then rely on people’s personalities to go out and seek people’s support . . . We also had a lot of our monitoring budgets cut through elections (Interviewee 10).

The uncertainty of how to actively engage in monitoring was a common theme in interviews. A regional council representative acknowledged:

The objectives were written in a non-quantifiable way and so it is very hard . . . When we are moving forward now [with a Regional Plan Review] we recognise that our objectives do need to be written so that

you can actually quantify them. That would make a big difference in our evaluation and monitoring (Interviewee 6).

Flood risk plan provisions need to be specific, measurable, achievable, relevant and time bound. This allows for risk reduction objectives to be measured, monitored and reviewed to assess if improvements can be made (Saunders, Grace, Beban, *et al.* 2015: 72). Applying justice to the review of plan provisions is complex as it requires social and philosophical considerations in determining, for instance, what is a fair and socially just distribution of risk. As authorities lack adequate resources to address all flood related problems at once, a plan has to establish what the priorities should be in the authority's efforts to attain risk reduction. This requires ethical consideration of what is the right thing to do.

In building communities that are resilient to flood risk, decision-makers are required under the RMA to reconcile different interests and trade-offs between the social, economic and cultural 'well-beings' that underpin sustainable management. The CDEM Act adds 'environmental well-being' to the list of well-beings. 'Well-being' is not defined within legislation; consequently, regional and territorial authorities have the opportunity to determine their own measures. As there is no guidance specifying the balancing of 'well-beings', economic considerations can be prioritised, such as in a cost-benefit analysis of flood mitigation strategies. This raises significant justice considerations and indicates that justice itself ought to be incorporated into 'well-being'.

Different spatial scales need to be considered in the monitoring process when reviewing links between flood risk policies and environmental justice. For example, applying flood risk management across a region may fail to take account of local variations in levels of vulnerability. In a procedurally just approach, the answer to a particular situation should be sought from within the community itself in light of the needs and concerns of those at risk from flooding.

Monitoring is important for procedural justice because it enables practitioners to determine if processes of flood risk management have been fair, if the implementation of flood policies has been undertaken in a just manner, and if their implementation has led to fair and just outcomes. For processes to be fair, policies need to be consistently applied across the authority area so that cases are



treated appropriately, although not necessarily the same, thereby allowing for case-by-case determination of local contexts. The data, however, shows a lack of monitoring of plan policies and objectives relating to flood risk and this inhibits the potential for planners to evaluate the planning outcomes. Consideration needs to be given as to how or with whom a council would participate in the monitoring process; for example, whether local communities are to be consulted in an on-going monitoring process.

### **5.3.2 Vulnerability of place is prioritised**

A risk-based approach, as a regional council representative commented: “doesn’t deal with the existing use stuff but it does ensure that we don’t get further development in crazy areas” (Interviewee 13). The vulnerability of existing built-up areas is often only exposed after a flood event. Existing uses were permitted based on the knowledge available at the time and therefore future flood risk may not have been considered. A regional council representative noted that: “Taking aspects of vulnerability of certain developments into account and comparing it to the consequences and the likelihood of the hazard has not been done very much in the past” (Interviewee 12). In considering whose responsibility it is to protect existing properties, the Queensland Floods Commission of Inquiry, established after the major Queensland floods in December 2010 and January 2011, concluded that “where residential uses have been established historically, there is little the planning system can do to mitigate this risk of flooding” (Queensland Floods Commission of Inquiry 2012: 146).

Decision-making may create ‘hazardscapes’ that embed risks and impede the considerations of future needs (White & Haughton 2017). To provide certainty for developers and to protect property rights, development is granted in perpetuity unless specific conditions specify. Established land uses are difficult to change as planning systems do not operate retrospectively, however under the RMA existing uses can be changed. Although district rules cannot revoke existing use rights they can be adjusted by regional councils, but only if there is the political will. Imposing mandatory higher planning standards in existing development is difficult to achieve without contestation, legal change, expert advice or financial grants (Bell & Morrison 2014). Enforcing higher planning standards to reduce

flood risk would be beneficial to the wider community in improving resilience and sustainability of the community, but would be economically detrimental in the short-term to existing property owners. Private property rights are held “virtually sacrosanct” (Glavovic, Saunders & Becker 2010b: 702). This raises issues of justice for the individual or the greater good of the community. Evidence from interviews demonstrates that decision-makers seek to maximise short-term returns for political interests and, as will be discussed in Section 5.3.5, to avoid liability.

The emergency management regime focuses on pre-event recovery planning and response so that land use activities are often restored in the same location after a flood event and consequently the risk exposure is continued (Glavovic, Saunders & Becker 2010a). Public and private insurance rules contribute to the continuation of risk (Lawrence, Sullivan, Lash, et al. 2015: 304) as properties are reinstated on land that is susceptible to flooding. Such an approach to managing flood risk could be procedurally unjust as future property occupants may not be able to obtain or afford high insurance premiums for a property that, arguably, should not have been repaired or reinstated on land at risk from flooding.

Integrating flood risk management into the planning system requires the proactive zoning of appropriate land uses early in the planning process. Accordingly, plan policy ought to establish that certain vulnerable land uses are to be located out of flood risk areas. This raises the contentious issue of how to define which are the most vulnerable land-uses that require the greatest protection. A regional council representative suggested that:

You might say that given the consequence of that event occurring with that vulnerability we have to have more restrictive standards for hospitals, retirement homes and electricity sub-stations . . . we don’t need to restrict houses and businesses so much (Interviewee 12).

Such an approach to land-use is at odds with land economics and marketing and would require public strategies to zone and thereby locate societal land-uses, such as schools or homes for the elderly, on land least at risk of flooding which may demand high market prices. To ensure procedural justice, affected communities must be allowed and enabled to participate in both the identification of vulnerable spaces and in rationalising which land-uses warrant the greatest protection from

future flood risk. The district plan process of a consultative draft and review offers communities the scope to respond to proposed land-use zoning.

Some residents consider that the designations of flood hazard zones within a district plan are not fair. This is exemplified by the words of a local resident of Thames:

Because there is a creek there the Council automatically decided that it was flood risk even though I am on the high side of the creek . . . If they are going to zone something as being of flood risk they need to demonstrate why and that is the piece that is sadly lacking from the Council . . . They have taken a whole approach rather than look at the detail (Thames resident 17).

Flood prone areas should ideally not be treated as one aggregate zone of equal risk. Assuming all areas of flooding pose equal risk fails to consider social disparities between different flood risk areas, such as coastal and inland, and ignores nuances that exist within and between the areas identified as high risk. Environmental justice research has highlighted the need to acknowledge diversity and difference within various socio-demographic groups and to recognise differences in social inequality that cause some people to be more vulnerable than others to the effects of flood risk. To achieve meaningful outcomes in flood risk reduction and to understand the vulnerability profile of an area, social and cultural considerations need to be taken into account and included in the planning process.

In examining how authorities assess and determine flood risk areas, the next section highlights the weight afforded to the tool of flood modelling in determining the vulnerability of places, in which physical considerations prevail over social matters.

### **5.3.3 Determination of flood risk through flood modelling**

A risk-based approach determines levels of risk to prioritise where action should be taken. In a procedurally just manner, these need to be defined with key stakeholders, namely the community, developers, iwi and the regulatory authority. As risk increases resource policies and consents become more restrictive than previously. Professional flood experts and planners value science and economics

in their decision-making as they are considered to be precise information. A district council representative commented that:

In Plan Change Three and in the Proposed Plan we have been able to go to far more of a risk-based approach by looking at what are the actual consequences here. When you get the flood, is it the case of can you wade through it and you are fine, or are you being swept away? What are the depth and the speed? Also looking at the likelihood of the event (Interviewee 4).

The Thames Coromandel District Plan flood hazard maps are based on the depth and velocity of a flood event on a particular site. Categories of flood hazard are defined as high, medium or low risk and are limited to potential harm to property and life associated with the predicted depth and velocity of floodwater. As there is little guidance available on what is an acceptable level of risk, to whom and to what, variations within and between regions in New Zealand will potentially arise. This has procedural justice implications for the communities living at risk of flooding.

Interviews highlighted the importance of risk modelling both in determining levels of risk and as an instrument of policy-making. Flood risk modelling, such as forecasts that predict the probability and likely magnitude of floods, suggest an increased accuracy in prediction. This, however, may be “false precision” as knowledge is fast evolving with earlier models being replaced (White 2013). Given that a risk-based approach requires the precise information obtained through flood risk modelling, the procedural justice issue is whether the community at risk has any input into the modelling process and access to the decision-making process. Flood risk models are generic in that they are designed to work anywhere for a particular type of flooding, provided that local details are transferred on to them. The model consequently frames the type of solution and this limits the extent local circumstance and difference are included in the flood risk management process (Donaldson, Lane, Ward, *et al.* 2013: 611). For example, a local resident expressed concern at the focus on river catchment modelling as opposed to flood modelling that incorporates storm-water.

If you go back and look at flood data . . . that came from anecdotal evidence of what actually occurred in the 1989-90 floods, a lot of it is outside the current modelling, that was based on how water flowed

during an actual event. A lot of the flooding that occurred through backyards and across town is not even in the catchment areas that are modelled (Thames resident 2).

The production of knowledge has procedural justice implications because universal knowledge, in the case of a generic flood model, which has been applied to a particular place, may be afforded greater weight than local, contextual knowledge in the decision-making process for flood management strategies.

Local residents questioned the reliance on modelling for decision-making and argued that local knowledge is often not adequately taken into account. “A long term resident knows, they have lived through the floods and know what floods and what doesn’t, and then when the Council produce data that doesn’t match their experience the Council looks an ass” (Thames resident 2). Furthermore, as local government employees retire or move on their knowledge may become lost to the Council. This was the case in the flooding caused by blockages in the Hape Stream, Thames, as described by a local resident:

The lost knowledge was something that became clear. Their [TCDC’s] access to plans of water lines and water mains was very limited. It seems talking to them at that time that most of the knowledge from the Thames Borough Council was in the brains of the men that did the work and it wasn’t written down very well (Thames resident 16).

The exclusion of local knowledge from the data set used in flood modelling may result in inhibited or ineffective participation by local residents. Procedural rights, thus, may not be adequately endorsed by local government in the negotiation of and agreement on technical data used in flood risk assessments. Flood modelling is essentially a technical approach into which it is difficult to incorporate community and local level differences. Similarly, and as will be shown in Chapter 6, using cost-benefit analysis to determine the construction of flood mitigation works is a blunt instrument that is insensitive to the nuances of local context. The process of flood risk assessment and modelling, with its reliance on technical tools, is blind to environmental justice concerns.

Justice concerns are implicitly apparent in the practice of flood modelling as the exercise requires practitioners to make value judgements on the type of knowledge to be taken into account and, at a pre-evaluation stage, to identify

which flood prone areas to model. Not all areas prone to flooding are modelled as limited council resources require selective modelling of flood risk areas. A district council senior representative acknowledged that: “There are certain other areas that we know that have a flood hazard and modelling has not been done on those areas. It’s a case of doing the most critical areas first” (Interviewee 3). Choosing which flood risk areas to prioritise for mitigation is itself steeped in justice concerns, values and judgements. Selecting which areas to model and how to model are hidden processes, in that local residents are excluded from directly contributing to the discussions. Procedural justice demands that the process of how areas are prioritised for flood mitigation, both in terms of flood modelling and the construction of physical mitigation works, is open and transparent to all stakeholders.

#### **5.3.4 Identifying residual risk and coping with the uncertainty of risk**

A belief that hard engineering structures can defend people and property from flooding appears to be prevalent in contemporary society. A regional council representative explained:

Part of the problem is that communities or TAs [territorial authorities] feel that if you build a stopbank, say to a 100 years, to protect an urban area then once you have built that stopbank surely then you can allow that urban area to develop unrestricted, because is it not the purpose of why you built that stopbank in the first place (Interviewee 12).

The ability of the state to fully protect its citizens against flooding through technical solutions is an optimistic view and one that is unrealistic. Even properties that are protected by engineered works are exposed to residual flood risk as all flood defences have the risk of floodwaters overtopping their design standards. Residual risk is defined within the Waikato Regional Policy Statement Glossary: 9 as “the risk associated with existing natural hazard structural defences, such as stopbanks and seawalls, including the risk of failure of a defence or of a greater than design event occurring” (Waikato Regional Council 2016c). Residual risk is often not identified or explicitly managed, and this is identified by MfE as a “lost opportunity for furthering reducing the damages and losses from floods” (MfE 2008c: 22). Interviews with local government practitioners revealed that residual risk is frequently regarded as an emergency

management issue as opposed to being a matter for land-use planning. If improving a community's knowledge of residual risk is essential to improving risk awareness, residual risk ought to be accounted for and published in district plans. In doing so, this would provide all stakeholders with access to the available environmental information – a procedural right.

Identifying residual risk areas is not a straightforward task for practitioners. A regional council representative explained the difficulty regulatory authorities have, “Trying to technically get the line on the map where the residual risk area is potentially quite difficult. That is where you come into the grey area” (Interviewee 6). Furthermore, the informant outlined the complexity of addressing the unknowns of residual flood risk within a regulatory framework that seeks certainty.

How do you manage those unknowns within a regulatory framework which is quite black and white? That is quite difficult to do. It comes down to at some point making a call that this is the level we have, and using best practice to identify how we got to that (Interviewee 6).

The uncertainty associated with residual risk adds a further layer of complexity to explain in a plan. As one council official noted: “Getting the community to understand that there is residual hazard and that it should be recognised is the first part of the challenge, before you start talking to them about how uncertain it might be” (Interviewee 12). Constructive risk communication is fundamental for effective local community engagement and, as discussed in Chapter 8, is essential for a capabilities approach to justice.

The RMA evidence-based processes strive for certainty of outcome in decisions. This reinforces the use by local government of single numbers for best estimates of flood risk, the use of single flood standards such as 1 in 100 year event for the design of flood levees, and the demarcation of fixed hazard lines spatially to control land uses. A regional council representative stated that:

We need pretty much certainty. We need to know whether you are on one side of the line or not. Having a big fat line just creates uncertainty. Individuals don't know whether they are in or out [of a flood risk hazard], or how they are affected (Interviewee 7).

This is indicative of a “lack of agility in plan making” (Lawrence, Sullivan, Lash, *et al.* 2015: 309).

Uncertainty is a difficult factor to incorporate into plans and it is rarely shown on flood hazard maps. Carefully worded qualifications regarding accuracy and application are frequently simplified to a line on a map or a figure within a district plan; thereby, omitting the true element of uncertainty (White 2013: 112). As a result, plans may falsely portray certainty and the true level of flood risk may be inaccurately interpreted or hidden from local residents. Whilst viewers of a district plan may have access to environmental information, which itself is a procedural right, they may only be able to read simplified data that has been provided by the council. Consequently, residents are lulled into a false sense of security about the risk they face, which may affect their behavioural responses. It is therefore important for planners to specify that a mapped flood hazard boundary is not certain and for policy to reflect the uncertainty.

Regulatory authorities place confidence on flood probabilities to accurately calculate flood events, but their accuracy is undermined by the uncertainty of climate change and the occurrence of unexpected or unusual flood experiences (Walker 2012: 150). Given the relatively short historical records of floods in New Zealand, there is significant underlying uncertainty in estimating current flood risk (Lawrence, Reisinger, Mullan, *et al.* 2013). Whilst legal and planning practices encourage certainty, they have difficulty in dealing with a range of possible outcomes. The increasing and unavoidable residual risk associated with climate change indicates the need for flexible and adaptive responses, such as secondary flood-ways for residual flow from higher than design floods. Consequently, decision-makers are under pressure to explore a full risk profile and develop multiple scenarios for future flood events. Arguably, with digital technological advances, uncertainty can increasingly be included on hazards maps and lines adjusted as knowledge is established. Providing access to the full spectrum of environmental information is procedurally just and is part of enabling communities to fully understand and adapt to flood risk. Knowledge empowers residents to prepare their household for a future flood event and to become informed participants in decision-making processes.



### 5.3.5 Contesting the process

It is evident that planners should proactively engage with uncertainty (White 2013), because plans that directly address uncertainty “can provide strong guidance and create certainty of process” (Saunders, Grace, Beban, *et al.* 2015: 69). Nonetheless, in practice this has proved difficult. Interviews indicate that council representatives are aware of the potential of liability. A regional council representative stated:

We have to provide absolute certainty. It is one of the struggles that we have. If we are putting lines on maps we have to be sure about those lines because they are going to be challenged through the plan process . . . We could become liable if those lines on the maps are completely wrong (Interviewee 7).

Attempts to implement spatially sensitive set back lines based on risk, such as by Kapiti Coast District Council (KCDC), have led to opposition and the subsequent revision of information. In 2012-13 coastal hazard provisions of the KCDC Proposed District Plan and the inclusion of coastal hazard information in LIMs were legally challenged by coastal residents. An independent Coastal Expert Panel review concluded that “the existing recommended hazard lines are not sufficiently robust for incorporation into the Proposed District Plan” (Carley, Komar, Kench, *et al.* 2014: 3). The contentious coastal hazard provisions were withdrawn and the information provided on LIMs was modified, with mapped information being replaced with general comment on coastal erosion. KCDC is currently undertaking a 2-3 year programme of scientific and engineering research to improve understanding of coastal erosion hazards in the Kapiti Coast. A Coastal Advisory Group has been formed by KCDC to guide the programme in consultation with the community. This example highlights the importance of early engagement with the affected community and the value of public education, such as in the development of the methodology for coastal hazards and in understanding the implications. A clear community consultation strategy, both in terms of conversation and education, needs to be planned for and worked through, from explaining and discussing broad information to the detail on maps.

The implication of flood risk designation is of great concern to property owners as it feels unfair and unjust to have a line delineating flood risk imposed and a consequential reduction in property value. The following quote explains this scenario:

If you get your house re-designated as a high-risk zone it affects your property value and it affects insurance. If you are going to re-designate zones from one level to another, maybe some compensation has to be offered, but compensation is tricky. Information is needed. You can't just re-designate and say that's it, bad luck" (Thames resident 8).

Many residents fear that the identification of flood hazard on a district plan map will negatively affect the economic value of their property and increase their insurance premiums. A district council representative discussed how, "from their perspective you are blighting their properties" (Interviewee 9), a potential that spurs residents to challenge flood risk maps. A regional council representative cautioned that: "There is a group of people that will challenge and challenge, and they can't be satisfied because the only way they can be satisfied is to get the blue line off their property" (Interviewee 12). A regional council representative highlighted the challenge posed:

It's working out how we can provide confidence to our decision-makers and the community that we have got it right and that what we are doing is in the best interest of the community, and to basically get around the smoke and noise generated by people who don't like the impact on their property (Interviewee 12).

The level to which individuals and communities are challenging council hazard identification and mapping is of concern to councils as it undermines their implementation of policies. An independent natural hazards consultant noted:

Councils are useless at implementation because . . . the hazard information will be challenged – such as in Kapiti. The policy will be unacceptable to individuals and they will take it to Court and the Environment Court will overturn part of this (Interviewee 5).

Councils are thus cautious in applying information that is uncertain because of the potential for legal challenges in the Environment Court should their adaptive action affect private properties. A regional council representative commented: "Councils need to be aware of those issues [community involvement] and start

community dialogue a lot sooner. I think that the Kapiti debacle may have been a game changer in terms of how we deal with the public” (Interviewee 6). This comment suggests that councils are beginning to recognise that early communication with communities is essential. To support a collaborative approach and avoid future legal challenges, the Resource Legislation Amendment Act invoke amendments that enable councils to adopt a collaborative plan process as an alternative planning track when undertaking a plan review or change or preparing a new plan.

Providing access to legal processes to challenge decision-making or impairment of procedural rights is a prerequisite for procedural justice. Whilst access to legal process is available for communities, there is a great deal of complexity involved in challenging decisions and not all residents may be able or willing to negotiate through the legal process. Furthermore, challenging a decision may be in the interests of a property owner in a particular place and time but not necessarily beneficial for the long-term sustainability of the wider community, the wider society or for future generations. Resorting to the Environment Court does not signify a collaborative approach in natural resource management. One of the simplest ways to avoid legal challenge is for local government to engage with stakeholders, specifically iwi and communities, early in the planning processes. An iwi representative stated: “Everything we do we have to take it to Court and that is a huge cost. Just hanging on to our fundamental rights as Māori, that is a huge cost and price to pay” (Iwi interviewee 1).

## **5.4 Discussion**

In scrutinising the flood risk management process in New Zealand, Sections 5.2 and 5.3 have established who takes decisions, on whose behalf, on what and by what means. This has laid the foundations for a procedural justice assessment of the process of flood risk management. Claims about the procedural justice of flood risk management, which is concerned with processes through which unequal distributive outcomes may occur, require two issues to be addressed: Section 5.4.1 establishes the ‘community of justice’ and determines who has a right to participate; and, Section 5.4.2 determines the procedural rights that are given to the ‘community of justice’ members in flood risk management.

#### 5.4.1 The ‘community of justice’

Defining the ‘community of justice’ determines who has a right to participate. Within the planning process a community is commonly used to describe a delineated territory or place, but this conceptualisation overlooks the way in which communities are social constructs that are formed through daily practice and experiences (Agrawal & Gibson 2001). A community may extend beyond the political boundaries of a settlement and encompass more people than the current resident population. A community can be perceived differently by different individuals who consider themselves to be members; therefore, its formation can be a source of contention.

This study shows that attention does not need to be paid to strictly defining a community, rather an all-inclusive approach should be taken when dealing with risk. It is not, however, as simple as stating that all people affected by a flood risk should have representation in the process. Birkholz, Muro, Jeffrey, *et al.* (2014), for instance, recognise that all facets of society, not just those at risk, have a role to play in shaping how risk is understood and dealt with. Flooding may affect all citizens of New Zealand at some place in time given that people move location and flood risk changes. Therefore, all of New Zealand’s people are participants of the flood risk management process. All interested parties, such as a New Zealand resident with a connection to a settlement exposed to flood risk, may contribute to the flood risk management process. An individual does not need to prove that they are a resident of a particular settlement to make a representation to a district plan review or policy proposal. Realistically, it would be extremely challenging to include all New Zealand people in every stage and aspect of flood risk management decision-making, such as in the completion of complex and technical flood risk assessment models, and given resource constraints. The focus on applying context-based decision-making so that the solution chosen is appropriate for the local circumstances and has been developed through local community engagement and participation is a logical approach.

Environmental laws restrict who is entitled to procedural justice to the present generation of humans (Du Plessis, Kennedy, Daya-Winterbottom, *et al.* 2015: 36). Nonetheless, the RMA requires decision-makers to consider the needs of future

generations. Although consideration in policy terms has to be given to future residents of an area at risk from flooding, for territorial authorities to directly include them is often impractical as they are unknown identities and, in the case of future generations, such consideration would be impossible. Evidence from interviews has shown that in practice local authorities focus on engaging with the present residents in ‘at risk’ communities, as they are the people who are the most affected by and have the greatest right to be included in the decision-making process. Arguments about justice and rights often balance on the competing views as to the purpose of social practices. There may be contested and competing justices in flood risk management decisions, such as the desires and demands of the current resident population of a flood risk area against consideration of future generations, which may ultimately result in a group feeling aggrieved.

The aim of procedural justice is to have the viewpoints and interests of all members of the community included in deliberative and discursive decision-making. In this respect, procedural justice is based on participatory parity – the capability of participating on a par with the rest of society (Schlosberg 2007; Fraser 1997). What matters is ensuring that all members of society are treated fairly in the deliberative and discursive decision-making process. Procedural equality, deriving from egalitarianism, is a useful justice principle for flood risk management because it is closely associated with participation and stakeholder engagement (Johnson, Penning-Rowsell & Parker 2007: 376). Procedural justice demands a right to a fair process.

#### **5.4.2 Procedural rights that are given to the ‘community of justice’**

The planning processes for flood risk management that have been discussed within Section 5.3 are evaluated for an (in)justice claim for the ‘community of justice’ members against the following dimensions of procedure that were identified in the literature review:

- availability and access to environmental information (Schlosberg 2007);
- inclusion in policy-making and decision-making processes, in terms of who is allowed to and enabled to participate and the resources available for participation, and the degree that power is shared and meaningful outcomes achieved (Bickerstaff & Walker 2005; Walker 2012);

- inclusion in community-based participatory research in which scientists collaborate with community partners to create knowledge about environmental concerns (Delemos 2006; Grineski 2006; Walker 2012); and,
- access to legal processes for challenging decision-making and protecting environmental rights (Walker 2012).

These are now discussed in turn.

### *Availability and access to environmental information*

Being able to know the scale of the flood risk, and its likely occurrence and patterning, is fundamental for all stakeholders to reduce their risk and mitigate the impacts of the remaining residual risk. As local government does not have the resource capabilities to simultaneously address all areas exposed to flood risk, areas are prioritized. Such prioritisation results in only the most critical areas being modelled by regional authorities. Consequently some areas are not modelled, leaving local residents unaware or reliant on past experience to predict the likelihood of future exposure to flood risk and its consequences. This could be interpreted as a procedural injustice by those people living in less critical areas.

Information on flood risk is shared between regional and district councils and between emergency management and planning. This sharing may create confusion for communities, with multiple points of contact, potentially inhibiting their access to the relevant information. For communities to maximise their involvement and their procedural rights, they need to be informed and understand the different roles and responsibilities of regional and territorial authorities in managing flood risk, as well as the responsibilities of themselves as community members.

The response to flood risk in existing built-up areas relies on emergency management and the construction of engineered solutions where critical areas of highest flood risk are prioritised. This exposes areas deemed by practitioners to be of a lower level of risk and thereby less critical to residual flood risk. To ensure procedural justice is carried out, the process of how areas are prioritised for flood mitigation works needs to be open and transparent to all stakeholders.

In providing community access to environmental information, and to improve the risk awareness of stakeholders, residual risk must be accounted for and published in district plans. It is, however, difficult for policy-makers and practitioners to define and delineate residual risk and uncertainty in district plans; thus plans falsely portray certainty. Consequently, the true level of risk may be inaccurately interpreted or hidden from local residents, which may generate a false sense of security and affect the behavioural responses of people living in risky spaces. Likewise, utilising a zoning approach for flood risk means there is a lack of available environmental knowledge at an individual property level or local neighbourhood scale so that the true level of risk is not revealed to the property occupants. Both these scenarios illustrate how a lack of environmental information for people living at risk of flooding is a procedural injustice.

District plans may not contain the most up-to-date information because risk knowledge is only valid at the time the operative plan is being written. The plan review process is slow and expensive in resources, therefore an operative plan may give false precision to a local community. Making flood hazard information available through the use of electronic media could increase a council's ability to keep information updated and reach the wider community, thereby meeting procedural rights of the affected parties. Procedural injustice is associated with the exclusion from closed information spaces. For example, web-based flood risk information is in practice socially differentiated as the information viewed by the public may not contain the full information available to a council. This, thereby, reveals that access to information is not 'open provision' and indicates unequal relationships of power. The information sharing process, however, must be developed and managed carefully as the potential impact of flood hazard information on property values and insurance costs may concern landowners.

A lack of monitoring of the efficiency and effectiveness of flood risk reduction policies and objectives limits local government's ability to determine whether processes, both their function and implementation, are fair and just and have led to just outcomes in the management of flood risk. This lack of information hinders an authority's ability to assess and improve its risk-based approach, which

in turn may create a procedural injustice in terms of inequalities in outcomes for communities or social groups at risk from flooding.

### ***Inclusion in policy-making and decision-making processes***

Procedural justice is pursued through opening-up involvement and influence in the decision-making process. Evidence suggests that whilst the public may have the legal opportunity to participate in plan-making and policy preparation, limited public participation actually occurs. The strategies used for public participation, such as making a detailed submission or lodging an appeal to a district plan, favour those with good financial resources, knowledge and political networks. The process itself may discourage some members of the public from actively participating. To ensure procedural justice occurs the interests of all affected social groups need to be properly represented. Local government needs to actively seek out opinions from a wide cross-section of the community, applying social and cultural considerations to both the methods of communication and engagement.

District plan provisions hide the technical knowledge sets and the background data on which decisions and objectives have been based. Plan provisions do not, for example, reveal the political pressures or weight given to economic considerations in decisions. Unless court action or a legal challenge is undertaken, local residents affected by a risk are not routinely given the opportunity to scrutinise the scientific knowledge base or to set the standards on which future decisions are based. Whilst communities would like to be provided the opportunity to scrutinise scientific expertise, as evidenced by the proposal by KCDC to introduce spatially sensitive set back lines along the Kapiti Coast, there is some concern within authorities that too much public participation might result in lay-people intruding into the realms of the expert. This highlights the unequal power relations as council staff have an advantageous position in the decision-making process. The transfer of responsibility to manage flood risk to communities has thus taken place without the associated redistribution of power. For example, government agencies maintain the power to reject flood risk management measures on economic grounds and leave some property and people exposed to a future flood event. A community's ineffective influence in decision-



making questions the true extent of local level empowerment and undermines a just and meaningful participation process. The power of self-determination for communities living at risk of flooding is crucial for a fair and a procedurally just process.

In policy preparation it is necessary to emphasise differences rather than merely enabling negotiation and consensus building. Planners need to consider why those people already exposed to other forms of disadvantage are also subject to flood risk. For example, biased decision-making, such as a council permitting affordable or lower cost housing in flood prone areas, would be a procedural injustice. Evidence has shown that in focusing on vulnerability of place, variation in social inequality, in terms of differing vulnerabilities of people at risk of flooding, is excluded from the decision-making process and as such is a procedural injustice.

### ***Inclusion in community-based participatory research***

Inclusion in community-based participatory research requires planners to collaborate with iwi and the local community to create knowledge about flood risk, such as enabling the community to participate in identifying vulnerable places and in rationalising which land-uses warrant greatest protection. Practitioners firstly need to establish and define the community to ensure all groups and individuals within it are included in the participatory research. In procedural justice much rests on the detail of how community involvement and public participation are realised and how the wider political system within which local processes fit is configured. Local government must consider methodologies and concepts necessary for effective and equal partnership with communities, such as how to ensure opinions are sought from all social groups so that one group's interests do not dominate the process.

Residents expressed concern that only selected information is used in flood modelling, so that issues such as local storm-water are excluded from the equation. As anecdotal evidence lies outside current modelling, historical information and local knowledge are seen as being lost or missing in the decision-making process. This promotes a feeling of unjust and ineffective procedures

within community-based participatory research. Issues of trust and communication are fundamental to community-based participation and empowerment.

The aim of flood risk management is to implement community agreed strategies to reduce risk yet inevitably contestation will occur. Whilst community participation in decision-making is procedurally just, managing community expectations can become a challenging issue for councils. Central and local governments need to be more frank about the level of protection that the state is able to provide, to prevent unrealistic community expectations of national assistance and on-going protection from flooding based on past experience. For example, local government should engage in early collaborative discussion with communities about managed retreat.

### *Access to legal processes*

Providing mechanisms for challenging decision-making and having regulations in place that protect the interests of communities in vulnerable low-lying or coastal locations are prerequisites for procedural justice. The long-term sustainability and resilience of a community may clash with private property rights. Delineation of flood risk on a hazards map becomes a political issue as individuals seek to protect their property rights. This raises the issue of justice for whom – a sustainable community or individual property owners?

Access to legal process is available at specified stages of the planning process. There is a great deal of complexity involved in challenging decisions, requiring a good working knowledge of the planning system and a reserve of resources which may limit community involvement. Consequently, it is particularly difficult for marginalised and disadvantaged groups to pursue legal action. This lack of inclusion may create a procedural injustice.

## **5.5 Conclusion**

Procedural justice is concerned with the processes and procedures through which choices are made. In examining who is involved in the decision-making process, Section 5.2 identified the need for better institutional cooperation than currently exists, clarification of responsibilities, and coordinated action by local government to enable communities to effectively participate in flood risk management. There is no one standard approach to managing flood risk across New Zealand as it reflects the local contexts and is responsive to different conditions within localities. Proposing consistency and equality in approaches at a national scale would not, however, be appropriate as this could ultimately generate inequalities in resources, information and funding outcomes within and between regional and territorial authorities. How decisions on flood risk management are made in a risk-based approach have been examined in Section 5.3. Claims of procedural injustice were formulated in Section 5.4, in terms of a community's limited access to the extensive flood risk information, unequal power sharing in decision-making and community participation, and restricted ability for disadvantaged groups to access legal processes. This chapter demonstrates the integration of justice concepts and the overlap of procedural justice concerns with distributive, recognition and capabilities.

As explained in Chapter 3, justice is based on the premise that what is reasonable and just is determined by the nature of deliberation and public reasoning, and this is a process that if reasonably conducted will lead to agreement (Campbell 2006: 97). This perspective of justice has been influential in the development of deliberative practices in the planning system so that planners have become facilitators focusing on procedures and due process. This chapter has shown that access to spaces of decision-making is spatially and socially differentiated. To achieve procedural justice for flood risk management, planning processes need to be transparent in that decisions should be reached through open procedures. Widening of public participation and public involvement in all stages of the decision-making process will achieve collaborative goals for risk management in the form of participatory decision-making. Discursive procedures can avoid legal deliberations by engaging in participatory approaches early in the planning process. For example, the process of risk evaluation needs to be open to and

involve public deliberations from a project's outset. Contested views, such as the severity of a flood hazard, can potentially be resolved by discourse. Ensuring participation for all affected parties is a critical component of a just governance framework, yet it is a process that remains deeply contested, particularly at the local scale.

Equal participation for all is a prerequisite for procedural justice, but it poses the question of what constitutes fair and equal participation in flood risk management. In focusing on procedures, planners may be criticised for the creation of policies that are insensitive to the identities of individuals, group differences and communities. This suggests that questions of value cannot be separated from procedures, so that "justice in planning is about situated ethical judgment and practice reasoning" (Campbell 2006: 99). If the aim is to achieve a just approach to flood risk management, it is important to have interests fairly represented rather than to value participation in its own right (Fainstein 2010: 175). Implementing fair and just processes are not sufficient as reaching just outcomes is also important. The challenge for planning is to achieve both fair and just processes and outcomes.

In continuing the exploration of how the perspectives of environmental (in)justice – procedural, distributive, recognition and capabilities - are found in an analysis of flood experience, the next chapter focuses on distributive justice. In its consideration of the distribution of flood risk management, Chapter 6 is concerned with distributive injustices caused by policies and practices that provide for an inequitable distribution of flood risk and its management.



## **Chapter 6 Distributive Justice**

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### **6.1 Introduction**

Distributive justice is concerned with the distribution of environmental benefits and burdens. Through a case study approach, this chapter investigates unevenness in the spatial distribution of flood risk and variations in its management in New Zealand. While there will always be differences, three issues need to be identified and examined in considering the distributive justice of flood risk management, as established in Chapter 3:

- (i) the environmental burden or benefit that is being distributed;
- (ii) the recipients of the environmental injustice; and,
- (iii) the principle of distribution.

Section 6.2 establishes the nature and extent of the environmental burden of flood risk in the case study area. While there will always be some unevenness, as Harvey (1996: 5) argues it is necessary to consider “the just production of just geographical differences”. With the aid of flood risk maps from the Thames Coromandel Proposed District Plan and New Zealand census data, Section 6.3 ascertains who is living in ‘at risk’ spaces. The spatial relationship between flood risk and socio-economic characteristics of neighbourhoods is considered. Section 6.3 discusses dimensions of identity and scrutinises group and community differences and unevenness. Who is at risk and whether there are inequalities in the distribution of flood risk are environmental and social equality concerns. The process of flood mitigation decision-making and the financial implications of the investment in flood defences are examined in Section 6.4, which addresses the principle of distribution of flood risk management. The investigation extends beyond mapping the socio-spatial patterning of risk to understand the inequalities and considers the criteria applied when prioritising flood risk management.

### **6.2 The environmental burden or benefit that is being distributed**

The first step in determining a claim about distributive justice is to establish the environmental burden or benefit, in this case the burden of flood risk. Exactly what is to be distributed is multi-faceted as it comprises: the level of exposure to potential flooding; the likelihood of being flooded; the level of the flood impacts;

distribution of investment in flood defences; and, preparedness capacity. This section considers the flood risk in three case study communities.

### **6.2.1 Flood risk in three case study communities**

As outlined in Chapter 4, this project embraces a case study approach of the Thames Coromandel district. Three communities were selected to provide examples of flood mitigation strategies and to assess the links between the spatial distribution of risk and the processes of decision-making and community engagement in New Zealand. Flood hazard maps contained within the Thames Coromandel Proposed District Plan (Thames Coromandel District Council 2016; the maps are dated December 2013) specify the high, medium and low flood hazard zones within the case study settlements. Other secondary data sources, such as flood risk technical reports, provided supplementary information for this analysis.

#### ***Thames***

Thames is situated at the south-western end of the Coromandel Peninsula (see Figure 4.1). As Figure 6.1 shows, Thames is located on the Firth of Thames near to the mouth of the Waihou River. Thames had a population of 7,140 in the 2013 census. As a built-up urban area, it is generally well protected by the Waihou Valley 100-year flood scheme that has spillways and stopbanks, stream piles, overflow channels, debris flow management and concrete channels. Thames is part of the Waihou-Piako zone management plan, which is the primary tool for implementation for all river and catchment management activities in the zone. This zone covers Kauaeranga River, Hape Stream and Karaka Stream; these are part of the Waihou Valley scheme.

The Kauaeranga River flood protection scheme provides river flood protection for an event with a 1% chance of occurring in any one year and protection from sea inundation to 3 metres above sea level (Waikato Regional Council n.d.). Improvements to the stopbanks along the Kauaeranga River were undertaken in 2014 - 2015 by the WRC as part of its core service under the Waihou Valley scheme. The Kauaeranga River floods frequently, threatening Thames and the

adjacent areas in significant events. Its vulnerability to flash flooding makes the time for any necessary response very short. WRC has a sensor on the river and monitors flows at all times. The Kauaeranga spillway, upstream of SH25, is essential for reducing flood risk to Thames and for ensuring the reliability and viability of the area's flood protection scheme. Flood improvement works for the Karaka Stream were undertaken when the Thames Hospital was upgraded between 2005 - 2009. Nonetheless, Thames is still vulnerable as it is built up between gorges and is located on flat low-lying land that could be vulnerable to sea level rise.

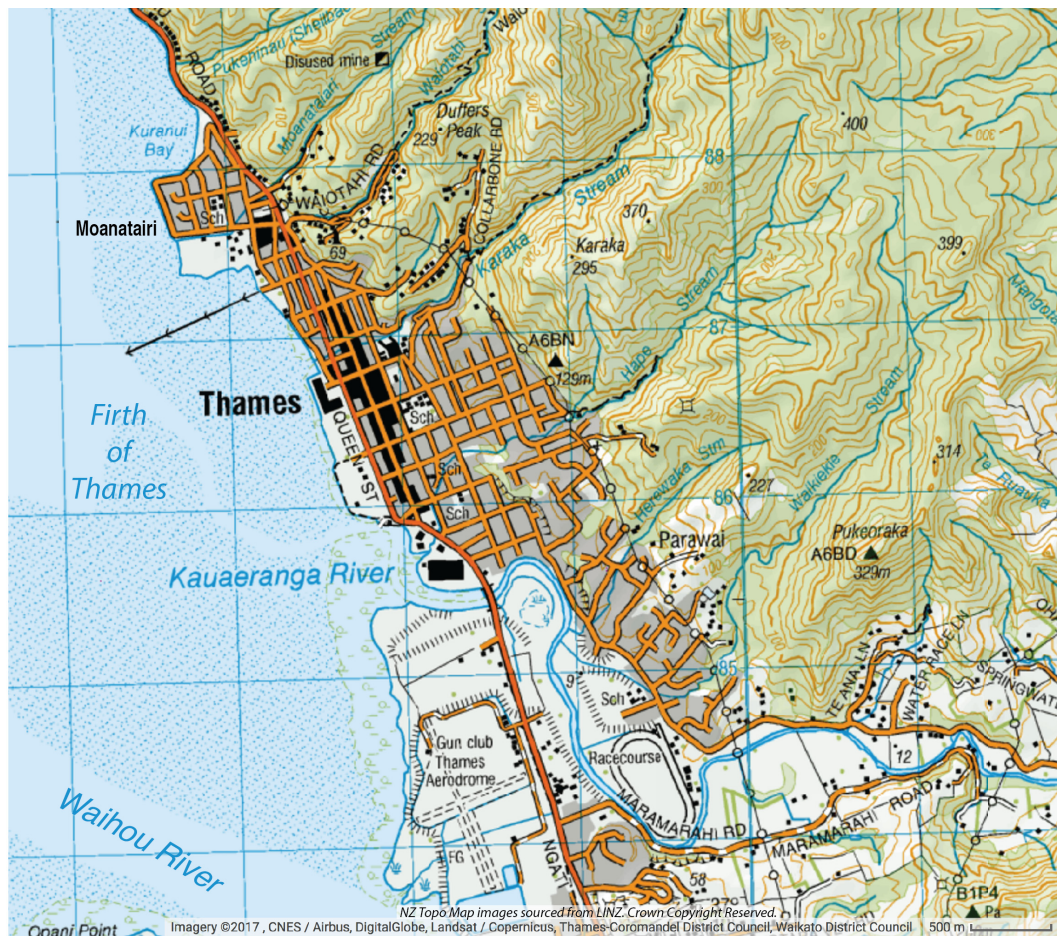


Figure 6.1 Map of Thames



During an interview a regional council representative explained the flood risk within Thames:

Thames is fraught with challenges around flood risk, but at the moment it is well controlled and we haven't had flooding issues for some time. I am not saying it won't happen. Thames has had quite a lot of focus in the past and all the streams have been highly modified to control their flood flows (Interviewee 14).

Of notable vulnerability is Moanataiari, a subdivision of Thames located on the foreshore on the northern outskirts of the town. It comprises land that has been reclaimed from the Firth of Thames. The subdivision is bounded to the north and west by a seawall, to the south by Burke Street and to the east by Queen Street/SH25. A local resident provided a historical perspective to the flood risk:

The floods have been coming here for years. You can see the photos from the early 1900s with the main street in Thames and it flooded . . . There was lot of bush cut up for the mines and the mines made holes and it has taken many years for it all to come right again . . . Where we live now [Moanataiari] we used to play in the mud pools so when you think about it is just reclaimed land so you must expect a bit of water I guess (Thames resident 13).

Reflecting on the historical natural environment, an informant commented: "To me it seems odd that it was a swamp and is a paddock away from the mangroves and the sea. I would have thought that it was not suitable for development" (Thames resident 11). These quotes suggest that once developed, an area of land may not show its previous vulnerability to flooding. In this respect vulnerability of place is looked at through a 'time slice principle' (Singer 2008), in that it looks at the existing flood risk distribution and considers principles of fairness irrespective of preceding events. Local residents, however, who have known the area for many years may look at the potential risk of a future flood through different eyes when compared to more recent residents and perceive risk within a historical context. Nonetheless, current residents appear to trust the flood mitigation works and protective schemes as they have bought houses on reclaimed land.

## *Tairua*

Tairua is located on the east coast of the Coromandel Peninsula (see Figure 4.1). As Figure 6.2 shows, Tairua lies at the mouth of the Tairua River on its northern bank and on the small Paku Peninsula. Its population was 1,227 in the 2013 census. Graham's Creek is a small stream draining into the northern Tairua Harbour. Over the last 25 years property owners in the Graham's Creek catchment have experienced flooding. Fifty-two properties in the Graham's Creek area were frequently flooded twice annually and this number more than doubled in significant events, such as in December 1998 when a 100-year event occurred (Waikato Regional Council 2016b).



Figure 6.2 Map of Tairua

Personal and historical perspectives of the flood risk in Tairua were provided in interviews with local residents.

I know the area intimately because I spent most of my working life was in animal pest control so I have pretty well crawled over every inch of those hills. The countryside is inclined to slip, the creeks block up and there is a huge amount of water of that catchment and it all has to come down into Graham's Creek (Tairua resident 3).

Consultation attempts between the regional council and local residents over many years had failed to deliver a decision or outcome to alleviate the flood risk. In 2014, a working party was formed in conjunction with WRC, TCDC and the community of Tairua to refine and finalise the proposed flood works. In 2015 and 2016, a 16 metre extension to the northern end of the Manaia Road causeway was constructed to help keep the road open during floods and to allow floodwater to drain away. Floodway improvement works of stopbanks, re-contouring the floodplain to form a floodway and creek channel works were undertaken. The floodway improvement works will provide protection against annual to 50-year flood events for most properties (Waikato Regional Council & Thames Coromandel District Council 2012b; Waikato Regional Council 2014b, 2014a, Waikato Regional Council & Thames Coromandel District Council 2011, 2012a).

### ***Coromandel Town***

Coromandel Town is situated on the west coast of the Coromandel Peninsula, 48 km north of Thames (see Figure 4.1). According to the 2013 census, it had a population of 1,660 people. As Figure 6.3 shows, Coromandel Town is located at the confluence of the Whangarahi Stream and Karaka Stream on a coastal alluvial fan. Properties situated on the low-lying land adjacent to the streams are subject to flood hazard. The Whangarahi and Karaka Streams have steep upper catchments, are exposed to high rainfall and unstable soils. Short duration high intensity rain events can cause flash flooding and debris flow in the streams and surrounding land with little or no warning (Waikato Regional Council 2013). A local resident provided a personal perspective to the flood risk in Coromandel Town:

We are at risk because all of our excess water from rain and water coming off the hills goes into tidal rivers, and when the tide is coming in the water can't get out and that is actually why we flood (Coromandel resident 1).



Figure 6.3 Map of Coromandel Town

Since the introduction of ‘The Peninsula Project’ in 2004, WRC and TCDC have worked with the Coromandel Town community to develop a flood mitigation strategy to address the Whangarahi and Karaka Stream flood hazards (Waikato Regional Council 2009, 2013; Environment Waikato & Thames Coromandel District Council 2010). As part of this strategy, measures to reduce flood risk to the community in the lower part of the central business district and Hauraki Road/Wharf Road were proposed. These proposals for the lower reaches of Whangarahi Stream comprised: a stopbank/floodwall along the left bank of the Whangarahi Stream and localised road raising along the left bank of the stream, raising the land and buildings on the right bank of the Whangarahi Stream on Hauraki Road (19 residential dwellings and a motel), and the purchase and relocation of two residential properties and one commercial premise. Whilst the majority of works were undertaken, the construction of a stopbank at Hauraki Road and accompanying works did not go ahead because the community

‘accepted’ the situation of flood risk. Consequently, this area remains at high risk of flooding. The proposed flood protection works at Hauraki Road recommended by WRC were determined by the community, through a consultation process in 2009, as being too costly for local residents through a levied charge to bear. WRC propose to consult the community at regular intervals on the outstanding flood mitigation works to establish if there is a shift in opinion and agreement to progress these works. At the same time, planning controls are to be applied to areas at flood risk to restrict future development.

### **6.2.2 Discussion**

The natural distribution of flooding is not just, in that floods are not equally spread over a region but occur in some places rather than others, due to geohydrological and climatological aspects as well as human-made causes or interventions. Whilst flood mitigation works have been undertaken within the three case study settlements to reduce the impact of the most vulnerable places, other neighbourhoods and residents residing therein remain exposed to future risk. Evidence suggests that a community’s ability and willingness to pay influences the scope of works undertaken, which may create distributive injustices. This questions the affordability of flood risk management for low-income communities and suggests that there is a need and role for government help to fund flood risk management in poorer communities.

Section 6.3 maps the socio-spatial distribution of flood risk to establish who are the populations that are exposed to flood risk in the three case study settlements. It considers whether there are inequalities in the distribution of flood risk and seeks to reveal patterns of unevenness and difference.

## **6.3 The recipients of the environmental injustice**

For this study, people residing in areas identified on district plan hazard maps as being at risk from flooding are the potential recipients of environmental injustice. In this situation it is not possible to identify the future generations as to who may reside in flood prone areas in future years. Nonetheless, intergenerational



considerations are pertinent particularly given climate change impacts, which necessitates both existing and future adaptation strategies to increased flood risk.

### **6.3.1 Mapping exercises**

Literature and the environmental justice agenda have shown that environmental problems impact most heavily on the most vulnerable members of society. To examine the pattern of distribution of exposure to flood risk and its relationship to socio-economic deprivation, the Thames Coromandel Proposed District Plan flood hazard maps (dated December 2013) for Thames, Tairua and Coromandel Town were overlaid with data of the social characteristics of the population. In a first exercise, an index of social deprivation using the NZDep2013 (Atkinson, Salmond & Crampton 2014) at the meshblock level was related to flood risk exposure. As explained in Chapter 4, NZDep2013 scores are based on a predefined set of indicators. Using NZDep2013 scores as an assessment of vulnerability to the impacts of flood risk primarily focuses on economic deprivation and may neglect other vulnerability factors, such as age, disability or non-home ownership.

In subsequent exercises, social data from the New Zealand 2013 census for median age per household and median household income were related to flood risk exposure, to ascertain if distinct or unequal spatial patterning exists. Age and income were used as individual, proxy vulnerability indicators. The selection of these two individual indicators was based on consensus in literature on their validity and a strong theoretical rationale, data availability at the meshblock level, their relevance to the case study context, in terms of the demographics of the settlements, and their identification as being of importance during interviews with residents. Indicators of vulnerability – age as a demographic characteristic and income as defining socio-economic status – are drivers of a population's ability to prepare for, respond to and recover from damaging flood events (Rufat, Tate, Burton, *et al.* 2015). The elderly may need assistance to manage during an emergency and economic deprivation may enhance the suffering from flood damage.

In these mapping exercises households are represented statistically and in aggregates to reveal patterns of proximity or potential exposure to flood risk. Thames Coromandel Proposed District Plan flood hazard maps (dated December 2013) are indicative of flood hazard from river sources and do not display the total 'at risk' areas; for example, areas potentially at risk from stormwater may be excluded.

### ***Thames***

Figure 6.4 shows that within Thames there is no marked difference in the scale of flood hazard, whether high, medium or low, and areas that have the most deprived NZDep2013 scores. Similarly, Figures 6.5 and 6.6 reveal that there is no marked difference in the scale of flood hazard and areas that have lower median incomes and areas that have an ageing population. This shows that there is no consistency between neighbourhoods at the meshblock level regarding the level of flood risk exposure and NZDep2013 scores, household median income and age. However, when compared to areas of the Thames community that are not at risk of flooding, areas at risk have higher NZDep2013 scores, lower median household incomes and older populations.

This exercise identifies a pattern of distributive inequality and reveals that in Thames there is a spatial bias towards areas with the most deprived NZDep2013 scores, households of older people and those on lower incomes living in flood risk prone areas. This suggests that in Thames people who are more socially disadvantaged are more likely to live in a flood risk area than people who are less disadvantaged. Such a distributive inequality will have significant impact on economically disadvantaged residents, who may not be able to afford household insurance payments and therefore will be less able to recover from the impacts of a flood event (Fielding 2007; Cutter 2006). A claim of inequality in flood risk exposure can be established as this analysis demonstrates aggregate patterns of unequal distribution of exposure to flood risk, supporting the claim of injustices of distribution.

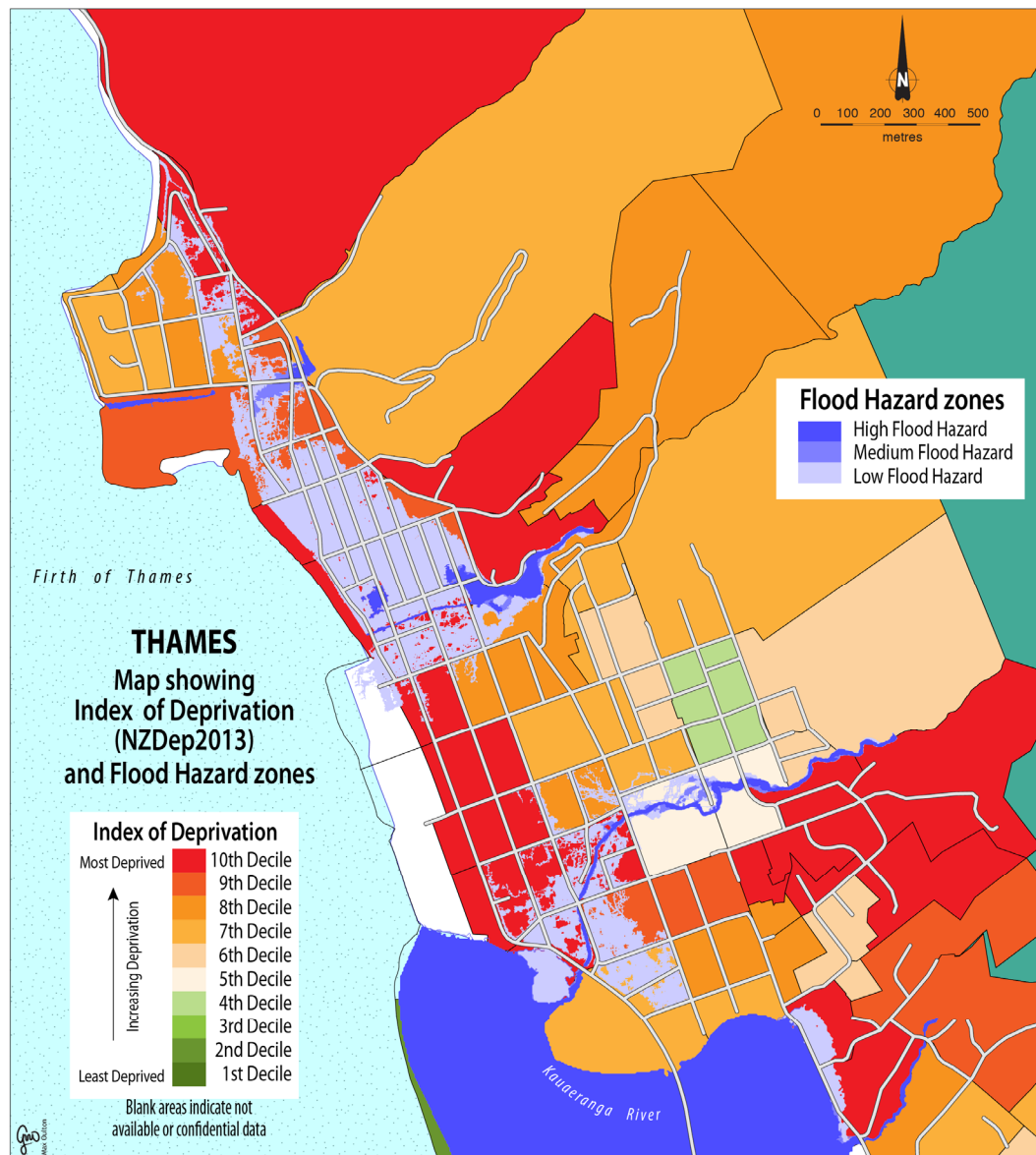


Figure 6.4 Map showing flood hazard zones overlaid by the NZDep2013 index of deprivation for Thames



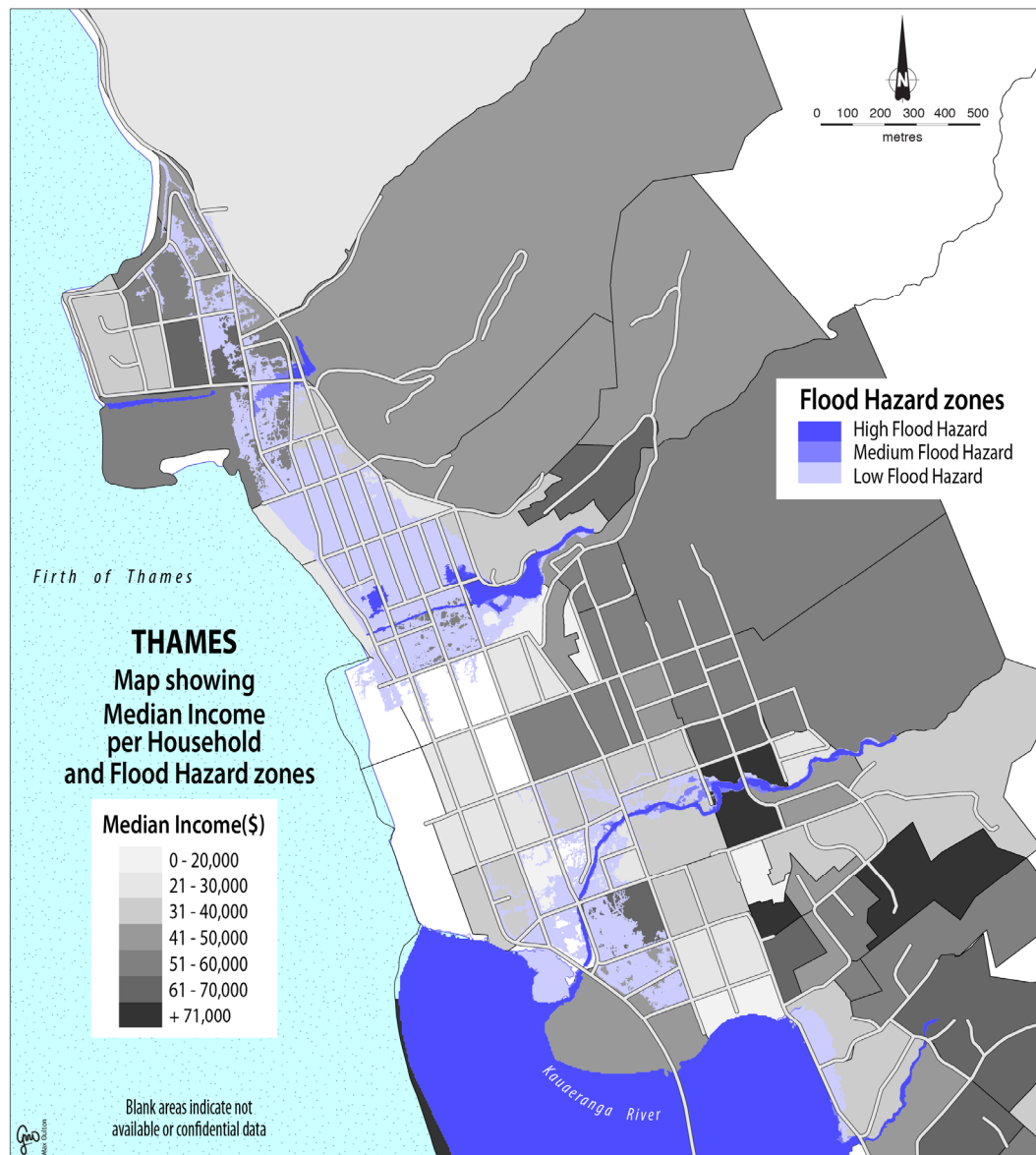


Figure 6.5 Map showing flood hazard zones overlaid by median income per household using New Zealand 2013 census data for Thames

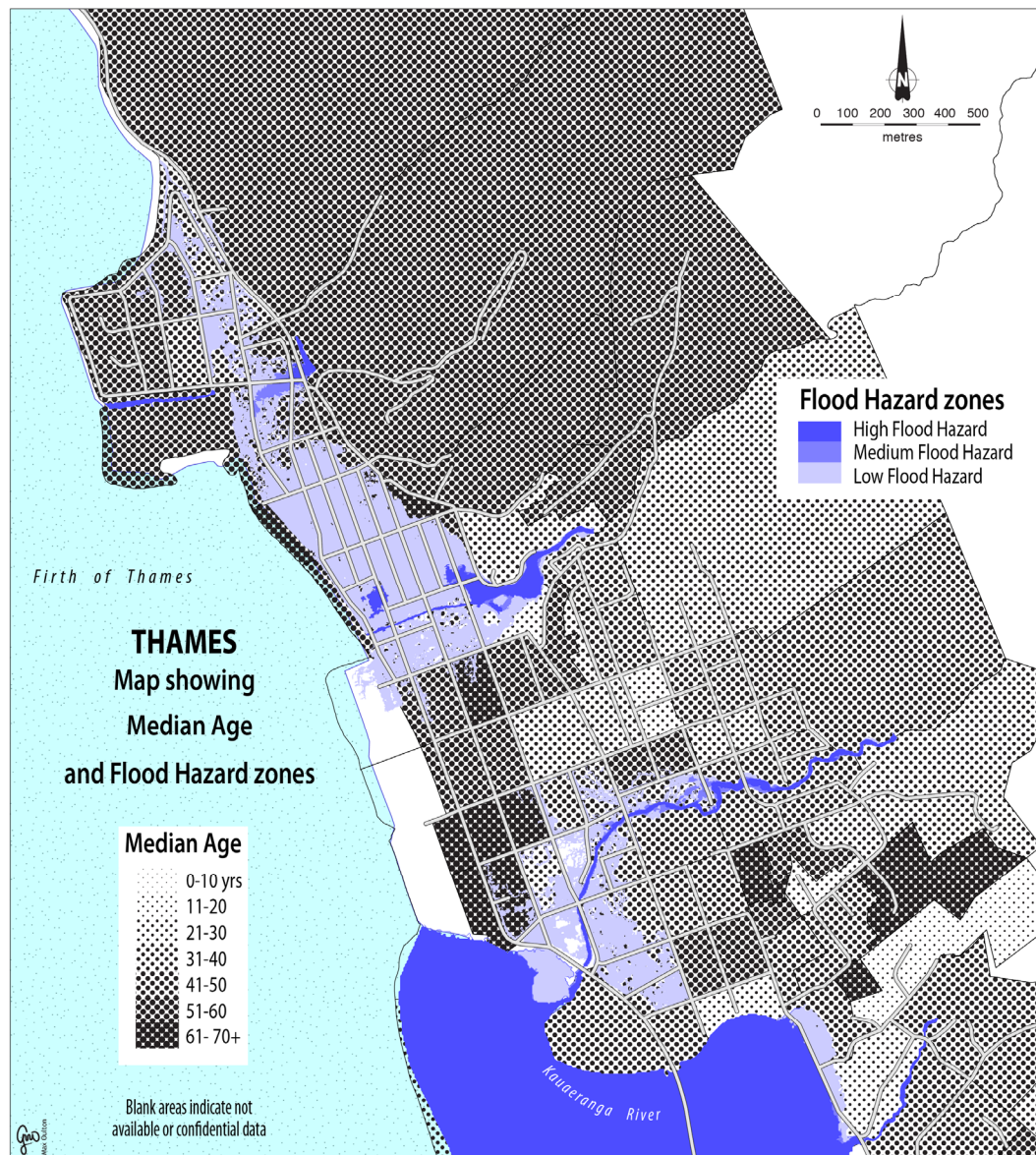


Figure 6.6 Map showing flood hazard zones overlaid by median age per household using New Zealand 2013 census data for Thames

## *Tairua*

Figure 6.7 illustrates that within Tairua the level of flood risk does not reveal any marked unevenness in the distribution of social deprivation, in terms of areas that have the most deprived NZDep2013 scores. Likewise, Figure 6.9 does not reveal any unevenness in age distribution when compared to the levels of flood risk. Figure 6.8 illustrates that households in the area of highest flood risk in Tairua have a tendency to have higher median household income and therefore are more affluent. This, in part, can be explained by the presence of higher property values within coastal areas and near to rivers, as proximity to the shoreline and open water views are highly desirable in the residential market both for permanent and second-home/holiday accommodation. More affluent residents desire the benefits associated with the flood risk and mitigate the risk by flood and household insurance cover, in distinction to the Thames study as previously asserted.

Whilst the median household incomes are low adjacent to the coast and the average age of households is higher, the coastal settlement of Tairua does not have the most deprived NZDep2013 scores - predominantly sixth and seventh deciles. This reflects the high proportion of retired people residing in Tairua. Areas that are not at flood risk in Tairua had marginally higher NZDep2013 scores compared to the flood risk areas, which may reflect the higher value properties in waterfront locations. Income and age variations were not marked between non-flood risk and flood risk areas, according to data derived from New Zealand 2013 census.

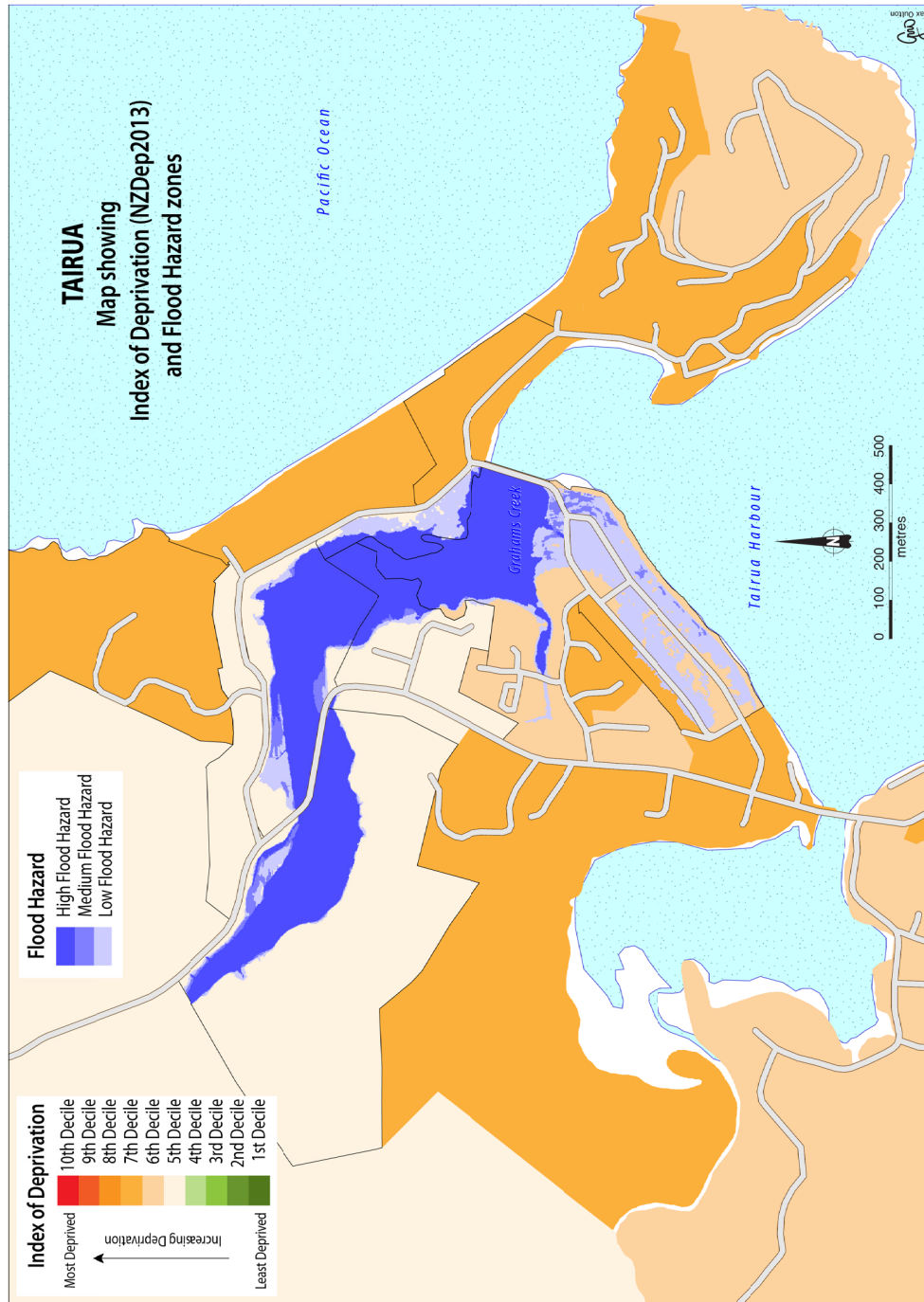


Figure 6.7 Map showing flood hazard zones overlaid by the NZDep2013 index of deprivation for Tairua



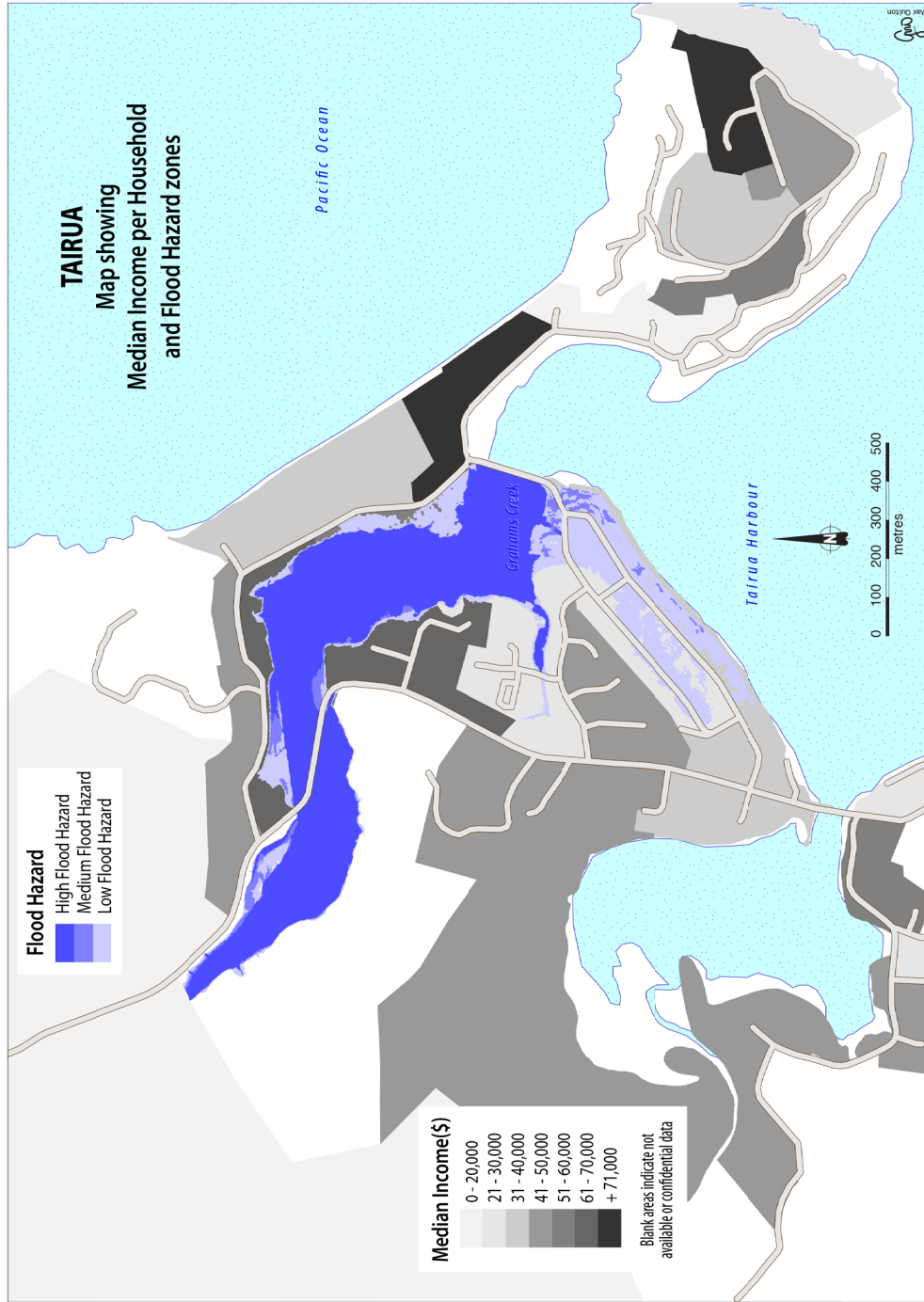


Figure 6.8 Map showing flood hazard zones overlaid by median income per household using New Zealand 2013 census data for Tairua

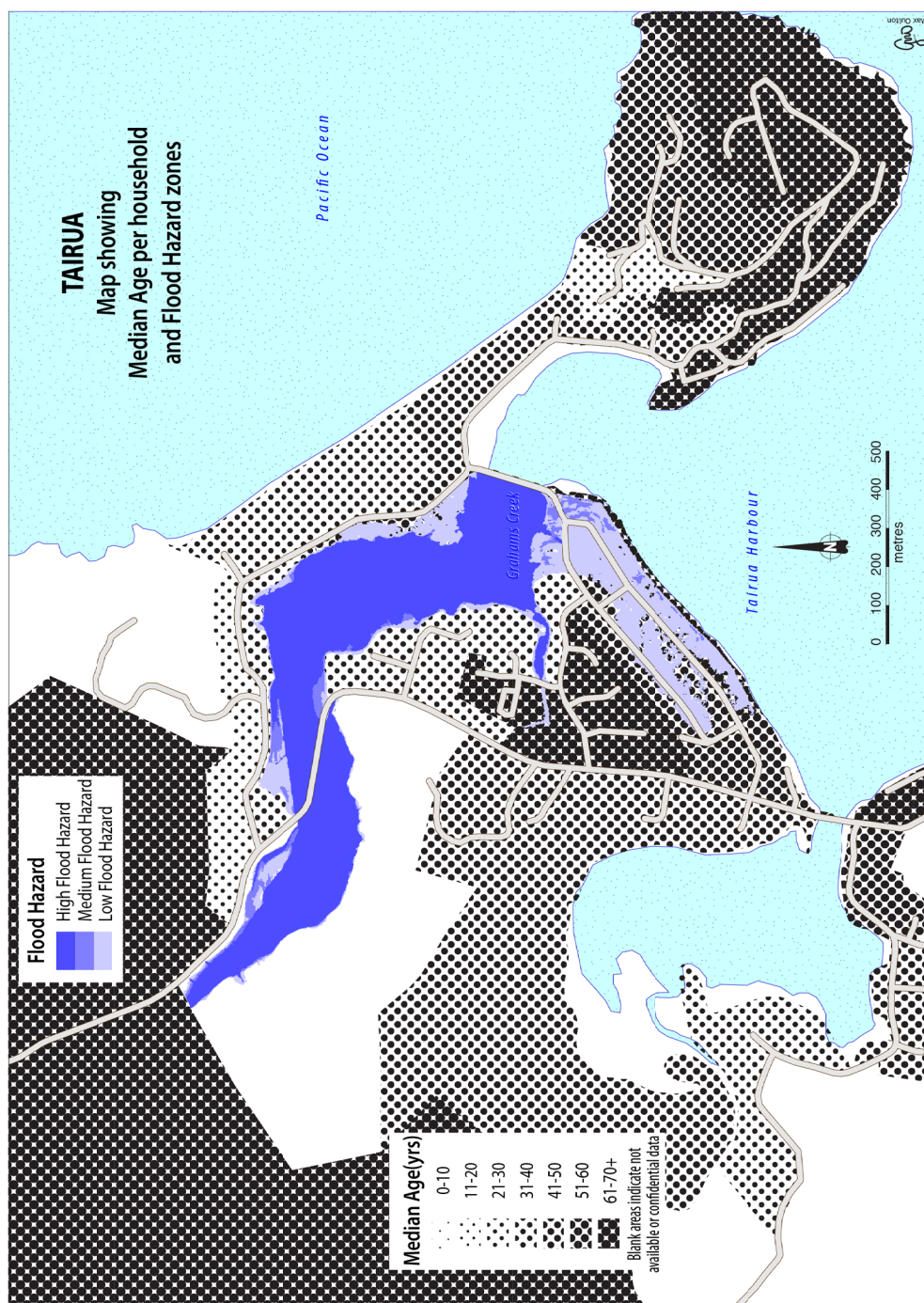


Figure 6.9 Map showing flood hazard zones overlaid by median age per household using New Zealand 2013 census data for Tairua

### ***Coromandel Town***

Figure 6.10 shows that within Coromandel Town there is no marked difference in the scale of hazard, whether high, medium or low, and areas that have the most deprived NZDep2013 scores. Similarly, Figure 6.11 reveals that there is no marked difference in the scale of flood hazard and areas that have lower median incomes and areas that have an ageing population. Figure 6.12 reveals a range of ages across the levels of flood hazard. When compared to areas of the community that are not at risk from flooding, areas at risk in Coromandel Town do not show variation in their social characteristics. NZDep2013 scores are predominantly uniform in the ninth and tenth deciles across the community. When looking at median household incomes, an anomaly is noted in one meshblock upstream towards the edge of the built-up area where some larger properties and more affluent owners are located. Little can be drawn from this anomaly. Overall, analysis of economic deprivation in Coromandel Town as indicated by the NZDep2013 scores and median incomes may suggest that the impact of flood damage would be significantly detrimental to the whole community, with limited financial ability to recover.

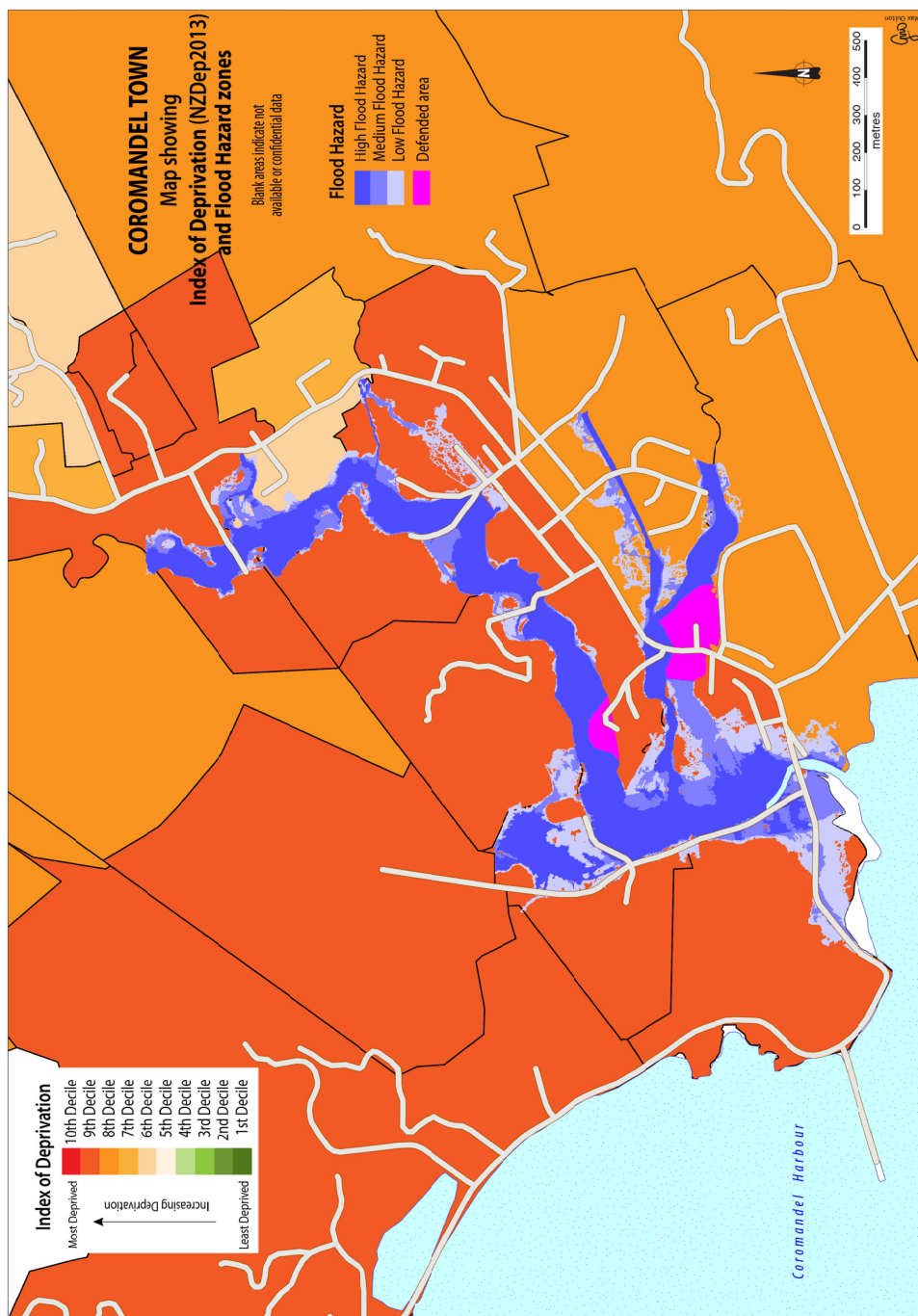


Figure 6.10 Map showing flood hazard zones overlaid by the NZDep2013 index of deprivation for Coromandel Town



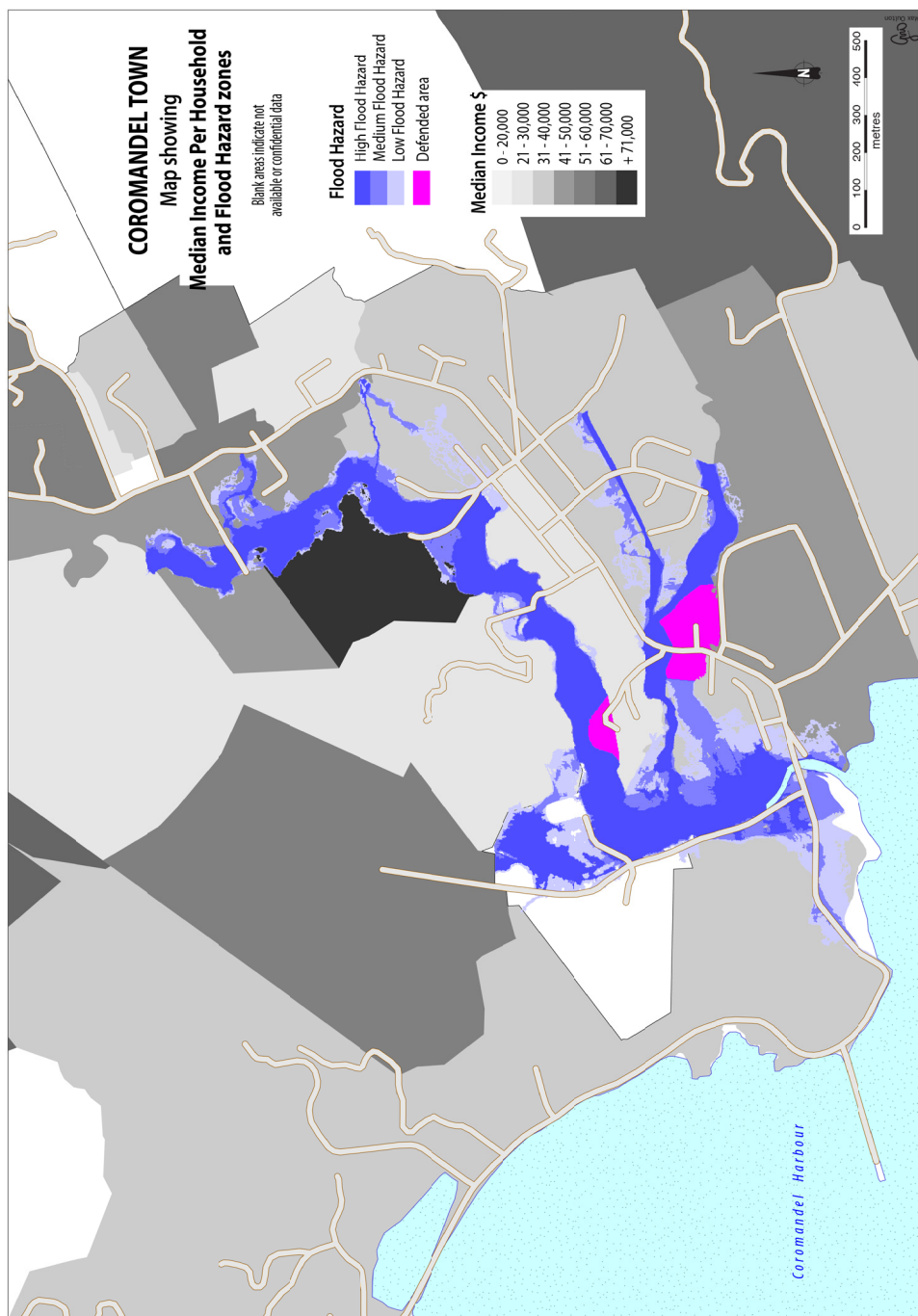


Figure 6.11 Map showing flood hazard zones overlaid by median income per household using New Zealand 2013 census data for Coromandel Town

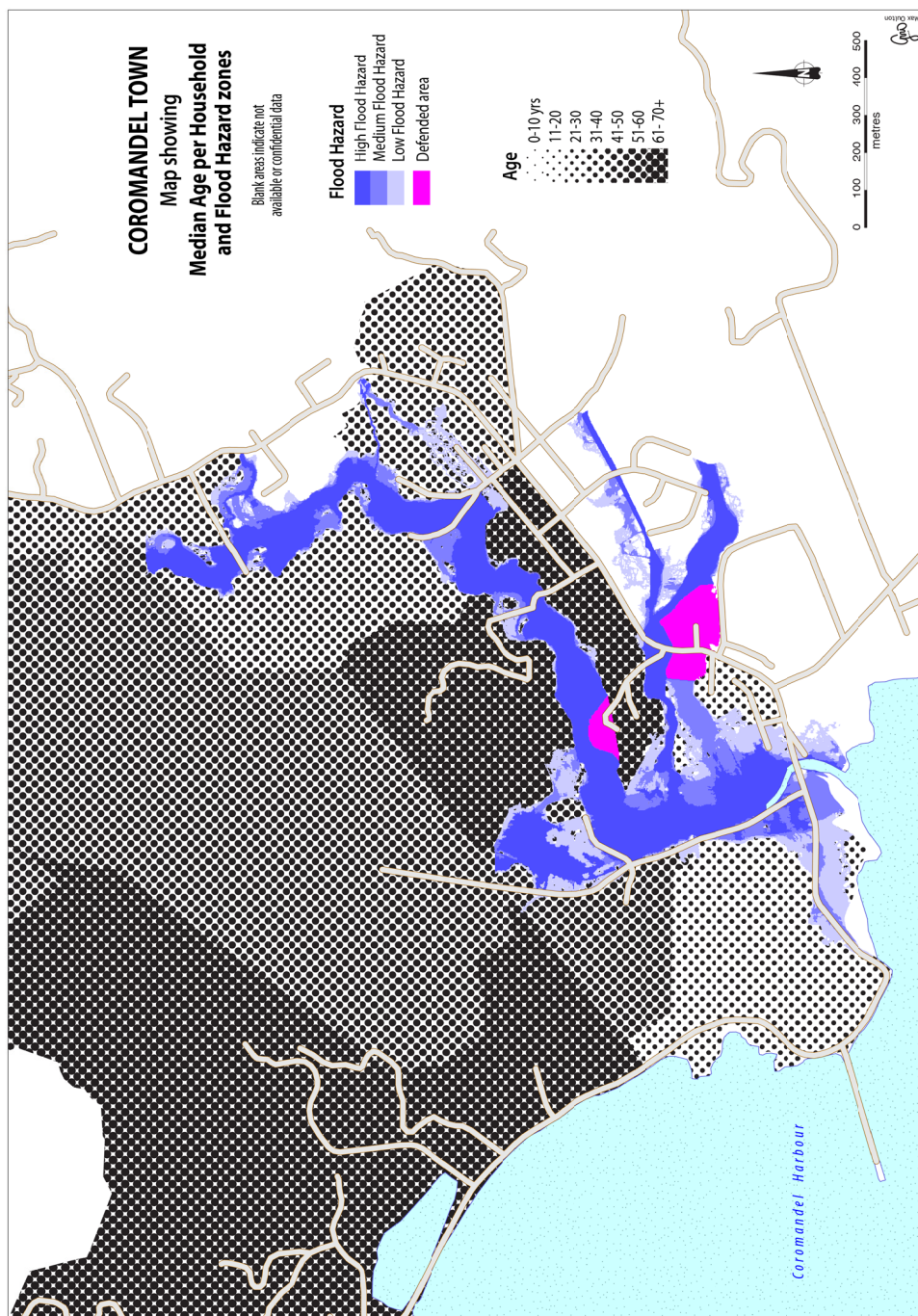


Figure 6.12 Map showing flood hazard zones overlaid by median age per household using New Zealand 2013 census data for Coromandel Town

Overall the maps of Tairua and Coromandel Town show that variation in level of flood risk exposure – as dictated by low-lying flood risk land – does not directly correlate to the pattern of socio-economic distribution. In Tairua the desirability of living along the waterfront and therefore the flood risk area has produced variations in the pattern of residential development and of residents' social characteristics. Whilst there is strong evidence of social deprivation within the community of Coromandel Town, in respect of NZDep2013 scores and household median income, there is no direct association with flood risk. In Thames, however, there is a spatial bias towards flood risk areas being occupied by the more vulnerable groups in society, specifically they are areas with the most deprived NZDep2013 scores, households of older people and those on lower incomes.

Descriptive claims of association are dependent on how the categories are delineated. Using data at the meshblock level makes the assumption that a meshblock area shares the same deprivation characteristics, thereby implying a uniform distribution. A smaller scale of individual households could, however, display distinct and unequal spatial patterning of other factors of vulnerability, such as home ownership. This mapping exercise has shown that no single dimension can be identified when seeking to understand the assortment of abilities a population requires to prepare for, respond and recover from floods. Characteristics of age and income may be drivers of ability but other factors such as health, coping capacity, risk perception, house tenure and neighbourhood characteristics also apply. Planners need to understand a neighbourhood's context as a whole to assess vulnerability to flood risk. Mapping the social distribution of flood risk forms only a part of understanding vulnerability to flooding. People at risk are frequently represented in aggregate for statistical purposes, but it is important to understand variation in how impacts of flood risk might be experienced. The exposure to flood risk is not the key to an assessment of injustice in this context; rather it is the vulnerability to the impact of flood events that needs to be considered.

Qualitative evidence, as detailed in the following section, provides a supporting analysis from the perspective of the residents of the case study communities.

### 6.3.2 Qualitative evidence

In parallel to the mapping exercise that shows patterns of potential exposure to risk, a questionnaire survey and semi-structured interviews were undertaken to provide qualitative data. The interview data revealed that there was an even split in opinion amongst residents as to whether some groups of society are disproportionately represented in living in areas at risk of flooding. Half of residents interviewed expressed concern at the number of elderly people that live in 'at risk' spaces due to the accessibility of flat land. In the case of Thames, "All the flats for older people and retirement villages are on the flat and so they could be more prone to flooding" (Thames resident 16). A similar feeling was expressed in Tairua, "It is probably fair to say that it is older people that have bought properties in areas potentially at risk" (Tairua resident 8). The following quote from an interviewee identifies a relationship between lower cost housing and high-risk flood areas. "High-risk areas means that those properties are cheaper and lower socio-economic groups will buy those houses" (Thames resident 11).

On the other hand, half of residents interviewed believed that from their observations all groups are living in risky localities. For example, one resident explained, "I think all people on the flat in Thames are vulnerable whether you are elderly or young or whatever, because that is the threat of living on a peninsula" (Thames resident 14). Another resident highlighted the range of affluence within local neighbourhoods, implying that all people are exposed to flood risk regardless of wealth. "In Thames you may have an expensive house next to a cheap house, they both could get flooded" (Thames resident 2).

If property values are lower in areas exposed to flood risk, disadvantaged people who require affordable housing, become spatially concentrated in areas of risk. In the view of one interviewee, lower cost housing has historically been built in risky spaces and consequently disadvantaged people are disproportionately living in areas of high flood risk.

Often cheap or low cost housing has been built in the most inappropriate places . . . In Tauranga when a big subdivision was done the building of a low cost area has been a bit of a carrot to get planning decisions made, so that some of the building sites can be utilized and mitigation of some

very low lying areas are offered up for low cost housing (Tairua resident 8).

This assertion is indicative of biased decision-making and procedural injustice. A focus on justice helps to understand why distributive patterns of inequality in flood risk exist. Market mechanisms can also price people out of neighbourhoods as land near to watercourses and the coast has an amenity value and therefore property prices are high. The issue, to be examined in Section 6.4, is whether flood mitigation assessments are favoured to protect areas of highest asset value.

### **6.3.3 Discussion**

Evidence within this section has ascertained two key points. Firstly, spatial bias towards flood risk areas being occupied by the most vulnerable groups may exist within some New Zealand ‘at risk’ communities. Evidence shows that within Thames there is a spatial bias towards flood risk areas being occupied by the most vulnerable groups in society. Flood prone spaces can simultaneously contain positive and negative attributes, in that economically advantaged groups may choose to live in high amenity but risk-prone waterfront locations, whilst deprived people with fewer choices may feel pushed into finding cheaper properties or affordable rents in risky but less desirable places. This in part explains the mix of socio-economic characteristics of the people living in the case study communities.

A just distribution would not simply be for all people, regardless of their identity, such as age, gender or wealth, to be equally represented in flood risk areas. Within the ‘at risk’ communities, it is necessary to identify the most vulnerable sub-groups, as inequalities exist in how different social groups are exposed to and experience the impacts of flooding. Literature indicates that deprived or poorer households are in general likely to experience flood impact more severely as they are less prepared, less able to finance household prevention measures and aid recovery, and are more susceptible to health impacts when compared to affluent households (Fielding & Burningham 2005; Whittle, Medd, Deeming, *et al.* 2010).

Vulnerability to the impact of flooding is, however, not straight-forward as vulnerable groups, such as older people and the less affluent, cannot be assumed to be less capable or able to adapt. Such an assumption would ignore nuances;

vulnerability is dynamic as people's abilities change and their capabilities vary on an individual basis. A local resident recognised this: "Some older people are very resilient. Across a community it is difficult to individualise and different needs are required for different people" (Tairua resident 8).

This generates the second point that, to identify and define who are the most vulnerable 'at risk' groups within a community requires local government to ascertain the local context through participatory processes. Population groups are not homogenous in their experiences of vulnerability. In defining 'at risk' populations, it would be beneficial for local government to include the views and perspectives of local people to develop strategies, draft contextual policies, target resources and direct flood warning campaigns. A participatory approach to determine vulnerability assessments could be used in combination with an existing index, such as NZDep2013, and individual indicators, such as income.

If flooding is a matter of justice it is important to ask whether the patterns of inequality and vulnerability that exist have arisen because of unjust processes. Whether the inequalities in flood risk exposure arise because these neighbourhoods are disadvantaged or in spite of their disadvantage is debatable.

#### **6.4 The principle of distribution**

In addressing the principle of distribution, it is necessary to establish what criteria is used, or would be the most appropriate, for distributing flood risk management and for the entitlement to receive assistance. This issue relates to whose responsibility it is and focuses on questions of power and the role of the state in protecting citizens from harm, as well as who should pay and in what proportion. The question of what is to be distributed is complex. For instance, it could be based on a particular level of flood risk management that is equal for all residents or an equal distribution of the local government resources available for reducing risk. The following section examines how decisions to implement flood risk management are made by local government and communities. This information was attained through interviews with planning practitioners and local residents from the case study communities, as set out in Chapter 4, focusing on flood

mitigation decision-making and the financial implications of local flood mitigation projects.

#### **6.4.1 Prioritising areas of risk**

Environmental statutes are deficient in setting criteria for the distribution of benefits and burdens. As shown in Chapter 2, the RMA specifies matters that are to be considered in the exercise of discretionary powers but does not contain any goals or environmental standards. Statutes, such as the RMA and LGA, do not provide criteria for distributive decision-making but express participation at a high level of generality. The distributive decision, therefore, depends on how authorities choose to exercise their discretion but, as will be shown, there are common issues.

Different stakeholders have different and competing priorities around flood risk management. A regional council representative highlighted a lack of clarity as to how to make informed decisions:

Should we be spending more money on maintaining what we have got or on building new stuff or . . . on understanding the flood hazard in the first place? We don't have a good system for prioritising that across those three areas (Interviewee 12).

Councils frequently use levels of risk to prioritise where action to mitigate flood risk should be taken. A regional council representative explained that: "In terms of flood mitigation . . . we look at the areas where we have the most development and the most at risk and go accordingly on that, following the Risk Management Guidelines" (Interviewee 6). This suggests, that in assessing which are the most critical areas, flood prone built-up areas are ranked by their severity to floods, bearing in mind the density of population and the potential for 'risk to life'. Allocating priorities to existing vulnerable urban areas is complex and often appears to be fraught with local tensions, particularly as the severity of a risk entail unknowns and contested facts. Utilising a risk-based approach that is reliant on tools, such as flood modelling, does not recognise differences in social inequality that cause some people and communities to be more vulnerable to the effects of flood risk. This has justice ramifications and requires ethical consideration of what is the right way to prioritise which communities receive

flood mitigation. In applying a technical process, priority is given to communities that are likely to be exposed to the most severe floods, whilst arguably a more just approach would be to prioritise communities that have a large proportion of the most vulnerable people. In this latter scenario the proportion of low-income households can, for example, be used as an indicator of vulnerability.

A regional council representative advised that in prioritising areas for flood mitigation investment: “There are influences from politics, pressure from stakeholders in terms of the people who are being affected, but then it comes down to the cost and who is going to pay for it” (Interviewee 6). These three issues are considered in turn in the following sections.

#### **6.4.2 Political pressure**

Planning officers expressed concern that decisions on flood risk management may ultimately depend upon the views of elected councillors. For example, a district council representative stated: “What planners can present as entirely reasonable always has to be approved of at the Council table, and that doesn’t necessarily get the same set of eyes looking at it for political reasons” (Interviewee 3). Councillors generally have a tendency to promote their own area. An independent natural hazards consultant explained that, “They are elected by the people that live there and so they will tend to go with what the people are asking for, whether or not it’s a sound economic call or whether the outcomes might build in more risk” (Interviewee 5). A number of interviewees suggested that short-termism detrimentally affects the choices made by politicians. A district council representative highlighted that, “Short-termism is a big thing . . . [natural hazard management] doesn’t mesh very well with your three-year parliamentary term” (Interviewee 9).

Decisions can be shaped by the short-term election cycle of three years, which places pressure on decision-makers to address community expectations, so that short-term priorities win over longer-term considerations. The general public have expectations that councils will protect them from harm, and this encourages councils to take decisions to construct physical protection measures that are visible to their communities but which may have limited lifetimes and



effectiveness. Matters of political influence have procedural justice implications as politics seeks to influence decisions. A community with stronger political support may be prioritised for flood risk management, creating the potential for injustice to other communities. On the other hand, politics could be a possible way to introduce justice concepts into the decision-making process, thereby balancing social considerations with the technocratic emphasis of flood modelling and economic measures prioritised in cost-benefit analysis.

### **6.4.3 Community pressure**

As part of the ‘privatisation’ of responsibility for flood risk management moving to stakeholders and non-state agencies, local government is concentrating on locally based flood risk management strategies. A council’s attention and investment priorities are directed “to areas that are subject to flooding at the moment and there is considerable community pressure”, as noted by a district council representative (Interviewee 4). This quote highlights the justice issue of who is, or which community groups are, more likely and able to exert pressure on local government agencies. Whilst all communities have equality in opportunity to engage in the RMA processes not all have equality in capabilities, and this is examined in Chapter 8. Local involvement in the decision-making process depends on the local capacity to act. Mobilising community pressure requires cohesion within a community as well as willing and able people to organise and gather support to promote the community’s interests and needs to the local authority. Studies, such as Fielding (2012), show that poorer communities are less likely to have the political voice to engage with community flood mitigation and reconstruction after a flood.

As has been established in Chapter 5, procedural justice depends upon available and accessible environmental information for a community and inclusion of the community in the decision-making processes with an appropriate share of power or influence. Whilst public participation is sought it favours citizens with good financial resources, knowledge and political networks and thus communities that possess these attributes will have a better chance of promoting their need for flood risk management to the council. This reflects the critique of the collaborative planning approach discussed in Chapter 3 and highlights the power of voices and

the limits of the planning system's ability to share power equally. Centralised planning still has a place in decision and policy-making in balancing stakeholder views and considering both long and short-term interests (White 2015).

Justice requires that people and places are treated individually and comparatively. It would thus be unjust to direct flood mitigation investment to flood prone wealthier neighbourhoods at the expense of less affluent neighbourhoods whose households remain exposed to a future flood event. Deliberative and inclusive forms of public engagement require planners to be equipped to manage and enable effective participation with all social and cultural groups. The efficacy and public reach of community involvement processes is discussed in Chapter 7.

In considering the distribution of flood mitigation investment, it is necessary to examine residents' opinions of whether their communities receive a fair share of flood risk management resources. In questions of fairness, the decision-making processes and the resultant outcomes ought to be transparent and accountable to the ratepayers who pay for flood risk management and for those people at risk of flooding. Interview data revealed that local residents have limited knowledge of where and how flood risk management resources are shared within their region. An interviewee stated: "I would suggest we more likely have less than other areas, but I wouldn't speak with a lot of knowledge" (Tairua resident 1). Yet at the same time there is a general feeling of unfairness in the distribution of flood mitigation resources and a lack of transparency. This is summed up with a resident's comment: "I don't know what has been spent in other regions. Until very recently we would not have had our share" (Tairua resident 5). Although, informed residents have greater understanding of funding mechanisms. As one resident explained: "If things are the way that I understand them then there is no funding for flood management. I gather that in all cases it is target funded" (Tairua resident 10).

The District Council was criticised by a resident for directing its attention and resources to the commercial areas of Thames as opposed to residential areas.

They seem to do the commercial district before they do residential . . .

On Albert Street if you have a very high tide you get water bubbling up through the stormwater drain. In the commercial end of town the

Council fixed up their stormwater drain and when I walk past there every day I have never known the problem to happen. But at the residential end there is a problem the Council hasn't fixed (Thames resident 12).

At a regional level, a resident highlighted local government's focus of directing investment for flood risk management towards protecting and enhancing agricultural land:

I have a feeling that we don't get our fair share compared to the rest of the Waikato. There is a lot of farming area in the Hauraki Plains and they are always building stop banks for farmers and clearing their drains . . . whereas in town I don't see much evidence (Thames resident 11).

These opinions illustrate the need for transparency in decision-making to develop community trust in the allocation of investment by councils. A reliance on tools for decision-making, such as cost-benefit analysis which is examined in the following section, means that it is difficult to show and measure the influence and sway political and community pressure has in the distribution and allocation of flood risk management investment and strategies across a region.

#### **6.4.4 Cost considerations**

##### ***Cost-benefit analysis as decision support tool***

The traditional argument for decision-making in public policy is that investment of public resources in infrastructure and its maintenance must be based on cost-benefit analysis. The cost-benefit analysis includes effectiveness and efficiency criteria. Section 17(1)(a)(iii) of the CDEM requires the implementation of cost effective risk reduction measures and, thus, costs-benefit assessments are undertaken prior to the presentation of risk reduction initiatives to decision-makers. Similarly, Section 32 of the RMA requires that consideration is given to alternatives, benefits and costs through cost-benefit analyses and multi-criteria analyses. Accordingly, the economic impact of floods continues to drive policy and expenditure on flood risk management measures. The use of cost-benefit analyses ticks the accountability criteria for decision-makers and, as the government is accountable to taxpayers, cost-benefit is likely to continue to dominate decision criteria.

Using cost-benefit analyses to assess policy and design alternatives derives from utilitarianism, in terms of maximising welfare. Such analyses do not consider issues of distributive justice as they are only concerned with the aggregation of costs and benefits not on how or why these are distributed. The indirect and social consequences of floods in New Zealand are underestimated, as they are not properly weighted in the cost-benefit analyses (Rouse 2012: 5). For example, there is inadequate recognition of indigenous environmental values within cost-benefit analyses. Research by Morgan (2009) explores indigenous knowledge synergies for integrated decision-making. Non-structural measures, such as flood warning systems, are more complex to quantify and cost therefore undue weight is given to structural measures that provide quantifiable data. The tradition of focusing on the costs of flood management investments rather than the benefits, such as the avoided damage, is a barrier to addressing increasing flood risk associated with climate change. The selection of differentiated flood protection standards based on cost-benefit fails to take into account the impacts of policies on vulnerable groups. Therefore, it does not offer procedural equality as it does not target residents or communities that are most vulnerable to flooding or assist 'at risk' areas that will not justify large capital-intensive schemes. Accordingly, vulnerability assessments should be undertaken and fed into cost-benefit analyses.

The focus on cost-benefit analysis tends to be on quantitative economic and physical impacts, as this analysis is unable to consider costs and benefits that are not measurable in monetary terms. The social and environmental impacts of flooding are more qualitative in nature as vulnerabilities to the impact of flood risk are social constructions and are not homogenous. Cost-benefit analysis is not transparent and inclusive to the residents at risk from flooding which is detrimental from a justice perspective. In light of this, broader consideration of the process of vulnerability is needed alongside a cost-benefit analysis. An alternative would be to embed cost-benefit analysis under a multi-criteria evaluation framework that evaluates measures on their potential to increase resilience or coping capacity of the community.

### *Direct benefit rating to determine who pays*

The aim for local government is to achieve a cost effective portfolio of capital defence projects. Historically, large flood schemes, such as the Waihou-Piako and the Lower Waikato, were subsidised by central government. The change in flood defence funding mechanisms is indicative of neo-liberal governance and a civic approach to environmental policy delivery (Nye, Tapsell & Twigger-Ross 2011) as it requires stakeholders, namely regional and territorial authorities and communities, to collaborate. Regional councils use a mix of funding options for flood risk management that have been developed through the community consultation process and are reflected in the Long Term Council Community Plan. Whilst this may be a democratic and procedurally just process it does not deliver equal outcomes in where investment occurs and who precisely should pay for mitigation works.

‘The Peninsula Project’ scheme for flood protection, soil conservation and river management on the Coromandel Peninsula established a direct benefit rating formula. The rates are set on a benefit/contributor classification using capital value, land area, uniform charge and direct benefit. Every property in the scheme is charged a catchment rate based on capital value to fund 50% of the catchment funding and 50% on a per property basis (Waikato Regional Council 2016a). Accordingly, local ratepayers who benefit the most from the protective physical works are required to pay the greatest proportion with a diminishing gradient further away from the problem. Procuring local contributions for local protection measures based on benefit proportionality is indicative of a liberalist approach where the process of allocation is based on a market system. A beneficiary or user pays principle fits within the libertarian model in that people with adequate financial resources, knowledge and motivation are able to realise a protection scheme that benefits only a certain area. This has justice implications as disadvantaged groups become marginalised in the process and, as a result, some neighbourhoods remain exposed to flood risk.

Interview and questionnaire responses revealed a high-level of resentment or suspicion of the regional council’s use of the direct benefit rating formula to fund structural floodway improvement mitigation works. This is demonstrated in the

following excerpt from an interview with a regional council representative: “People think that council should do this for us, but where do councils get their money, from the ratepayer . . . If people still want to live there they need to pay into this scheme otherwise it is just not tenable” (Interviewee 14). Local residents have high, if somewhat naïve, expectations of councils as demonstrated in the following questionnaire response, “The government and local councils should make areas safe for all homes. Home owners pay enough towards the costs of the community” (Q231T).

Differential rate payments can cause unease within communities as to who benefits and who pays for flood risk mitigation. A feeling of fairness by residents was associated with a council’s ability to accurately identify the beneficiaries of flood protection works. “User pays is probably necessary and is acceptable provided beneficiaries are accurately identified. Selection should not be confined to existing state of today and must take history into account” (Q25). The second sentence of this quote draws on a ‘historical principle’ (Singer 2008) of Nozick's (1974) theory of justice in transfer, where a situation’s history is utilised to assess whether the distribution of the environmental burden is unjust. For example, some residents argued that to ensure fairness individual circumstances should be taken into account.

My wife and I have spent \$30,000 on lifting our land and buildings to be out of the flood zone. So we feel that we shouldn’t have to contribute as much as a person who has done no work around their property and is going to get protection from these flood mitigation works which they are installing now (Tairua resident 3).

Taking history into account would be practically challenging for councils to achieve. Whilst the use of direct benefit rating formula for flood mitigation works may be technically and economically efficient, it may be neither just nor fair at an individual level.

Residents’ support for direct benefit payments for flood protection measures was in the minority of questionnaire responses, with a vote of only 12% (n=12). Examples of local residents support for user pays include, “At the end of the day the residents are the ones that are going to benefit from their properties being protected more than anyone else” (Tairua resident 1). “If you choose to buy in

Moanataiari that's fine but then if you want more help with flooding you must be prepared to pay. Why did they buy there - often because it is cheaper" (Thames resident 17). Of those questioned, the vast majority at 64% (n=62) were in favour of wider community payments, as explained in the following quotes: "I don't use the library but I don't have a problem paying for it because that is part of society" (Tairua resident 2). "I think flood works should be paid equitably by the ratepayers as it benefits the whole area" (Tairua resident 5). The benefits that flood protection measures provide to the wider neighbourhood were thought to be significant. For instance, a resident of Tairua explained:

When we get the big flood, which the experts tell us we are going to get one day, if we didn't have these flood prevention works going in all of those houses and commercial area down by the shops would all be under water. So all of that area is going to benefit in the long run from the flood mitigation works, so they [WRC] need to spread their net a lot further than just the 84 houses that border Graham's Creek (Tairua resident 3).

Residents of Tairua began paying the targeted charges in June 2016. Subsequently, the Tairua Residents and Ratepayers Association undertook a poll of the residents to ascertain whether the community would be prepared to pay equally. A local resident explained that:

It would cost about \$30 a year each for the next 30 years on their rates. They are already paying exactly that sum for removing mangroves and nobody has noticed that or argued about it . . . We got 76 returns to our request which went out to 600 people . . . two were against and said no, two qualified their answer and 72 said yes (Tairua resident 10).

Following a presentation to WRC by the Tairua Residents and Ratepayers Association, the Council has agreed to review the direct benefit system within the next year. This shows that the Regional Council is listening to the community's concerns, although agreed solutions may take time to be reached.

In the case of Coromandel Town, residents believed that the beneficiary system put an unreasonable burden on ratepayers in the direct benefit areas and did not recognise the benefit of the works received by the wider community. Community feedback to WRC led to a review being carried out in 2010. As a result, the entire

community of Coromandel Town funds the local share, which is 65% of the total cost, of stream maintenance work on a flat capital value rate basis. This is not in accordance with the regional council's funding policy that recognises direct and indirect beneficiaries. The two examples of targeted charges for flood mitigation works in Tairua and Coromandel Town illustrate that when decisions are made at a local level it is necessary for an appropriate resolution to reflect the context involved (Walker 2012).

#### **6.4.5 Exposing inequality in distribution**

The cost implication of paying for protection works is not evenly spread across a community. Clearly, the more socio-economically vulnerable will find an increase in their rates to pay for the construction and on-going maintenance of protection works to be a greater burden than more affluent ratepayers. A district council representative summed this up:

Of course when you say community it is pluralistic. There will be people within a community who will say 'I just want the problem solved and I don't care how much it costs', and others who say 'I can't afford to pay, my house was damaged in the last flood and I had no insurance' (Interviewee 9).

For claims of environmental justice, issues of vulnerability, need and responsibility ought to be considered alongside the distribution of the flood risk. Distributive inequalities in vulnerability, such as wealth, compound distributive inequalities in flood exposure so that a claim for a just distribution may require more than equality and reflect the differentials in need. For example, poorer communities may require better flood protection because residents lack the necessary resources to flood-proof their own homes. This aligns with Rawls's (1971) second principle of a just society, namely that the position of the least advantaged is optimised.

The relative prosperity of a community influences the extent of mitigation works put in place, as in the majority of situations government funds do not cover the full cost of the proposed structural defences. A district council representative explained that:



In the case of Coromandel the works were quantified for mitigating flood hazard in building stop-banks etc. and it was determined there that the costs of that were too great for the community to bear, and so they accepted a situation where the flood would occur over land, but wouldn't have been flooded by a stop-bank, but they just couldn't afford to build the stop-bank (Interviewee 3).

In the opinion of a local Coromandel resident: "The money is not there in the community, the income is not there . . . People in Coromandel can't put their hands in their pockets to pay, like in other more affluent towns such as Tairua (Coromandel resident 1). The same case was, however, explained differently by a regional council representative:

We had a situation in Coromandel Town at Hauraki Road where for that street we wanted to provide stopbank protection. The landowners along that street decided that they didn't want anything and I think money possibly influenced that but it wasn't the overriding factor. They felt they wanted their view of the river. The view of the river was more important than the risk of flooding (Interviewee 13).

This example demonstrates how interlinked flood risk issues are - in this case, both the financial contributions required from local residents and the value to residents of the view and amenity of the river influenced the extent of mitigation works completed.

To avoid any future accountability or liability, a regional council must demonstrate it has tried to work through a process of flood risk management with a community. A regional council representative explained that Coromandel Town residents: "[They] weren't disadvantaged, they made a choice. I think people's perceptions of risk and what they are prepared to put up with and live with is different" (Interviewee 13). Whilst a local government representative may argue that the extent of works undertaken is the community's choice, a community without economic abilities to pay may be constrained in its choice. Furthermore, within each community people have different perceptions of risk tolerability and acceptability and communities change over time. At the same time, councils have a duty of care with expert knowledge that in some cases should override whether a community is willing or able to pay for further structural works. A regional council representative recognised that: "There is a balance between the

community making the decision and the council saying we think that the risk is untenable . . . The decision-makers are the emotive landowners and therefore how can they give a balanced objective view?” (Interviewee 14).

In the case of Coromandel Town, WRC proposes to consult the community at regular intervals on the outstanding flood mitigation works to establish if there is a shift in opinion and agreement to progress these works. A local Coromandel resident suggested that the community could potentially raise the requisite funds for flood mitigation works if the Council permitted more appropriate development.

The Council generate money for infrastructure from development contributions from developers through growth . . . That would possibly be where the money to fund flood protection works needs to come from . . . We need money to improve our environment and that is the bottom line . . . If you don’t do something with the infrastructure and climate change increases then none of us are going to be able to live here. The risks will be too high. You have to balance it. That way it is the community providing it itself because it is allowing growth in order to have what we need (Coromandel resident 1).

This quote suggests that local communities require fundraising capabilities to enable them to undertake flood risk management strategies. As discussed at Section 6.2.1, there could, however, be a potential conflict of interest if district councils grant consent for further development in flood prone areas to increase the revenue returns from rate payments.

The questionnaire responses indicated that 71% (n=69) of residents believe that district councils have an obligation to contribute towards the cost of flood protection measures. Views were expressed that district councils, in permitting housing to be built in flood-prone areas, have an obligation to pay for remediation works. “The District Council must have some responsibility as housing has been approved in these areas” (Q307T). Similarly, although with a smaller margin, 61% (n=59) of questionnaire responses believe that regional councils should contribute towards the cost of flood protection measures. In interviews residents explained their position, “Why from a regional perspective are we paying for a

velodrome near Hamilton and yet the regional money doesn't want to go towards flooding in Tairua" (Tairua resident 4). In a similar vein:

We pay for Lake Taupo in our WRC rates and we pay for transport in Hamilton. We have no public transport whatsoever here. The Coromandel Peninsula is a huge tourist attraction and yet a lot of the basic infrastructure has been very sadly neglected (Tairua resident 9).

As rates are broken down on bills, ratepayers are able to see the allocation of funds and therefore are in a position to question why money from their community is used to fund projects many kilometres away from which they may not directly benefit. The transparency in rates reveals the distributive injustices between flooding and other public policy across the region.

#### **6.4.6 Discussion**

Interview data has shown that flood risk areas are prioritised by authorities on the basis of need in terms of the severity of flood risk. Decisions on flood risk management are, however, influenced by political and community pressure, with finance being the most critical aspect. As the case studies demonstrate, the available finances within a flood prone community can limit the scope of mitigation measures implemented. Resolving the distributive principle is not straight forward as it is difficult to determine what is fair in terms of from where the money should come to implement flood risk resilience policy and decisions. Disagreement between authorities and the public over funding mechanisms for flood protection works indicates that the social contract between flood risk victims and the state remains contested in three main areas. Firstly, local residents consider that district councils, and to a lesser extent regional councils, have an obligation to contribute towards the cost of flood protection measures as they permitted development in flood risk places. This is inconsistent with the individualisation of risk in a risk-based approach. Secondly, differential rate payments for local flood mitigation works can cause unease within communities as to who benefits and who pays, particularly as individual circumstances of the properties and residents are not taken into consideration. Thirdly, data suggests that a wider community payment, as opposed to differential direct benefit payments, is the preferred option by local residents; but this is contrary to the regional council's approach. This confirms the applicability of engaging with

justice principles in the decision-making process of flood risk management so that people and places are treated individually and comparatively.

A risk-based approach is reliant on tools that identify the severity of risk but do not recognise differences in social inequality that cause some people or communities to be more vulnerable than others to flood impact. Advocates of environmental justice, as noted by Bell (2004), have employed three principles of distribution: a principle of equality; a principle of equality plus a guaranteed standard; and, a guaranteed minimum with variation above that minimum according to personal income and spending choices. Under the first principle of distribution, the notion of distributive justice as equality would require the manipulation of populations residing on floodplains to give equality in exposure to flooding across social groups. This would arguably be a nonsensical justice target (Walker 2012: 150).

Applying the second principle would allow no population to be exposed to a defined level of flood risk and thereby relates to equal rights. This, however, relies on certainties of future flood risk calculations as well as the provision of secure and unfailing flood defences and strict planning restrictions on the development of floodplains. Providing protection for all communities at risk of flooding to an agreed level, namely universal engineered standards of protection, would be impractical and grossly inefficient. Furthermore, an equal likelihood of the level of floods does not take into account unequal vulnerabilities and coping capacities that produce different flood impacts. Distributive inequalities in vulnerability compound distributive inequalities in exposure to flood risk. For instance, poorer people have fewer resources to prepare for and recover from the impact of flooding.

In the third approach the failure to ensure minimum standards for everyone is the issue rather than inequality per se. The focus in this scenario would be on how floods are experienced. Paying attention to vulnerability reduction and self-help household adaptations could bring benefit to all people at risk of flooding and avoid the injustice of structural solutions that only benefit a neighbourhood. This highlights the connection of justice as distribution to justice as procedure and

promotes the importance of addressing justice as recognition and the capabilities of communities at risk of flooding.

A lack of monitoring, as outlined in Chapter 5, suggests that regional and district councils do not adequately consider the distributive impacts of their flood risk management policies. Consequently the policies do not directly address the differences in flood vulnerabilities experienced within and between communities. The focus of egalitarianism, in terms of promoting the virtues and the good implicit in social practices, is on vulnerability reduction and public-funded flood risk management strategies for communities that are disadvantaged. In this context, projects should be targeted at the most vulnerable people, such as through funding local self-help adaptation strategies. Inequality in the distributive investment of flood risk management, in terms of direct support from local government to parts of a community, may be acceptable under Rawls's (1971) second principle of a just society if it benefits those who are least advantaged. In Rawls's terms, access to flood risk management is seen as a primary good, whilst in Sen's (1999) terms, being free from the risk of flooding is an essential part of achieving valued functioning. Seeking equality in the capability to achieve the functioning of flood risk protection is at the core of distributive justice. A detailed examination of capabilities occurs in Chapter 8.

## **6.5 Conclusion**

This chapter's examination of the distributive justice of flood risk and its management has been underpinned by three questions of inquiry. Firstly, the environmental burden or benefit that is distributed, in this case flood risk and its management in three case study communities in the Thames Coromandel district. The second inquiry focused on the recipients of the environmental injustice in terms of who are the people at risk from flooding that reside in the case study communities. A mapping exercise and qualitative evidence from interviews sought to discover whether certain groups are over-represented in areas at risk from flooding. In Thames there seems to be a relationship between areas that have the most deprived NZDep2013 score, households with lower median incomes and older people and areas of identified flood risk. The results for Coromandel Town and Tairua were less conclusive. This is, in part, because the majority of

Coromandel Town has high NZDep2013 scores and low median incomes, consequently little variation was evident between flood prone and none flood-prone spaces. Similarly, little variation in NZDep2013 scores was evident across Tairua, although notably the area of the Graham's Creek floodplain and shoreline around Tairua Harbour has an ageing population on lower median incomes. Whilst inequalities may exist in how different social groups are exposed to flood risk, it is the inequalities in vulnerability of who suffers most from the impact of a flood event due to pre-existing social inequalities that creates injustice. As risk impacts different social groups in different ways, planners need to expand their frame of analysis from flood risk to include risk and vulnerability. The distributive impact of flood risk management needs to be considered by decision-makers at the outset of policy and project appraisals.

The third area of inquiry centred on the principle of distribution. Data has shown that, whilst management of flood risk areas are prioritised by authorities on the basis of the severity of flood risk, decisions are influenced by politics, community pressure and financial implications. Thus, the allocation of resources for flood risk management and the distribution of costs are a social construction rather than being determined solely on the environmental condition of the flooding. In doing so, resource allocation contains justice implications. Data has shown that the procedures that prioritise 'at risk' places for flood risk management advantage affluent and knowledgeable communities, as these communities have the resources to harness political and community pressure to engage with local government and the planning process. A just approach requires decision-making process and outcomes to be transparent, accountable and participatory for both the people at risk of flooding and for those paying for flood risk management strategies. With this in mind, Chapter 7 examines the decision-making process in a local flood mitigation project focusing on methods for public participation to ascertain how injustices arise.

This study has shown that two aspects of the financial implications of flood risk management have justice implications - the use of cost-benefit analysis to economically assess flood impacts and evaluate the costs and benefits of alternative options to reduce risk, and the use of direct benefit rating to disperse the costs of mitigation works to community members. Cost-benefit analysis is the

tool predominantly used to assess which flood risk areas should and should not be protected. In a cost-benefit analysis, where the focus is on economic effectiveness and efficiency, it is difficult to attribute value to indirect and social consequences of proposed flood mitigation works as they provide broad social and environmental benefits, which are not quantifiable to a single measure. Furthermore, the impact of not undertaking flood mitigation projects in lower socio-economic communities may not be taken into account by local government policies. This means that the criteria used in determining which communities are entitled to receive assistance to manage flood risk does not adequately consider environmental justice implications. An explicit recognition of the costs for the communities involved and the distribution of those costs within communities is missing from the decision-making process. If the intention of cost-benefit analysis is to identify the communities where the benefits offer the greatest gain to society then arguably the benefits of avoided damage to all socio-economic groups warrant consideration for a just society. This demands the use of a multi-criteria analysis in prioritising flood risk management to vulnerable communities and encourages flood risk management options that look beyond high-cost flood protection works to include state assisted self-help adaptation.

The use of direct benefit rating to fund flood mitigation works was found to heighten existing inequalities within communities so that households in the floodplain bore the risk and had to pay for remediation works that would benefit the wider community. For poorer households this is double jeopardy. The demand for a fairer response from residents in Coromandel Town resulted in the costs being distributed across the community, on the basis that remediation works provide protection to neighbourhoods beyond the floodplain and to local road users. Flood prevention works are treated differently from other public services, such as transport or libraries, which are funded from across the region, which leads to feelings of unfairness within flood risk communities.

Achieving distributive justice requires that just arrangements are assessed both in terms of just distributions and also in how distributions of flood risk management affect the recognition and capabilities of communities to reduce their vulnerability to the impacts of flooding. Chapter 7 examines justice as recognition as a necessary part of the equation to reduce inequality in the distribution of flood risk

and its management. Justice as recognition is concerned with who is given respect and valued. It focuses on promoting inclusivity in all communities, and in so doing, raises awareness of the non-recognition and mis-recognition of social groups and communities, particularly less privileged and indigenous peoples. Power relationships lie at the heart of the problems of environmental justice.





## Chapter 7 Justice as Recognition

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### 7.1 Introduction

Justice as recognition is concerned with who is given respect and valued, in terms of who is socially and politically given recognition. Processes of disrespect, denigration, insult and stigmatisation devalue some people and the identities of places in comparison to others (Fraser 1997). Recent environmental scholarship, such as Holifield (2012) and Walker (2012), highlights that ‘politics of recognition’ is integral to the realisation of justice claims. Disrespect of social group differences constrains individuals’ participation in decision-making. Exclusion from the decision-making process may lead to an inequitable distribution of environmental harms and exemplifies the broader context of injustice in vulnerable communities. Fraser (1997) refutes the view that it is necessary to choose between the ‘politics of recognition’ and the ‘politics of redistribution’, and argues for an integrative approach that encompasses the best aspects of both.

As established in Chapter 3, justice claims are multi-dimensional and are not based on a single notion of justice, similarly claims for recognition can be made at multiple levels. Institutions of the state may give unequal recognition to social groups whose identity is defined by inter alia ethnicity, gender, disability and age. There is also a wider cultural basis of misrecognition so that “the conception of justice occupies social and cultural space beyond the bounds of the state” (Schlosberg 2007: 16). In confronting the injustice of cultural domination, non-recognition and lack of respect it is necessary to examine values and practices embedded within the socio-cultural and political elements of society that impede the full recognition of a group. To achieve justice as recognition, authorities and agencies need to acknowledge dimensions of identity and group or community differences and enable their meaningful involvement in policy and decision-making. This involves respecting and valuing all social groups and making considerations of their interests an integral part of policy-making and decision making processes (Preston 2016: 47). Recognition enables and legitimises participation and, accordingly, issues of representation and accountability underpin environmental justice.

In the context of flood risk management, and as the investigation of procedural justice in Chapter 5 exposed, justice as recognition calls for democratic and participatory decision-making and the inclusion of local knowledge into planning processes. In considering a claim for justice as recognition, Section 7.2 examines the decision-making process for a flood mitigation project at the local level. Interviews were undertaken with council staff, iwi and local residents who had the opportunity to be involved in the development of the project. Residents revealed how they perceived and viewed the purpose and outcomes of their participation. In Section 7.3 themes that highlight unequal patterns of recognition in decision-making are drawn out and discussed, specifically exclusion and marginalisation in the process, a concern of not being listened to, the undervaluing of local and historical knowledge, and barriers to Māori participation. This in-depth examination exposes the qualities and key requisites that are required for justice as recognition within the planning process of flood risk management. It highlights the importance of incorporating local and indigenous knowledge into the planning process, as opposed to community and iwi involvement being limited to a consultation exercise that does not influence the outcome due to unequal power sharing. Section 7.4 highlights four key issues for justice as recognition which local government needs to incorporate when creating opportunities for stakeholder participation in flood risk management.

## **7.2 Exposing the deficiencies of public participation at the local level**

This section focuses on a case study investigation of the 2014-16 Graham's Creek flood mitigation project in Tairua, which has been outlined in Chapter 6. The Graham's Creek case study illustrates the complexity of creating and delivering flood risk measures from a sociotechnical management framework. For this project, a participatory approach was utilised in which insights into the needs and views of the 'at risk' community were obtained by WRC, with the assistance of TCDC, through face-to-face meetings and a public submission process. Information was shared through a series of newsletters and organised drop-in days (Waikato Regional Council & Thames Coromandel District Council 2012b, 2012a). The aim was to ensure a collaborative approach and to build trust in the local authority's approach to flood risk management, particularly as the 2014-16

project was the culmination of many years of failed attempts and frustration on all sides.



Figure 7.1 Photograph of information board detailing the floodway works of Graham's Creek and Manaia Causeway upgrade in Tairua

### 7.2.1 Tensions in identifying causes of flood risk and agreeing a solution

A series of interviews with local government representatives, iwi and local residents revealed tensions in identifying the causes of flood risk at Graham's Creek and in agreeing a flood risk management strategy. A local resident commented: "A lot of people from the Councils didn't have the empathy of what was going on and, furthermore, didn't have the expertise or common sense to recognise what the problems are" (Tairua resident 3). Residents explained that there were four main causes of the flooding of Graham's Creek. Firstly, the causeway acted like a dam.

The introduction of the causeway [in the 1960s] meant that the floodplain was restricted and it dumped silt short of the causeway and raised the floodplain. The entire floodplain went up something like a metre over 30 years . . . In 2001 the amount of water hitting the causeway built up to such an extent that it burst the causeway and blew the road apart. It created another exit for the water. TCDC then replaced

the bridge with a bridge that allowed less water flow than the previous one (Tairua resident 10).



Figure 7.2 Photograph of Manaia Causeway over Graham's Creek, Tairua

Secondly, residents believe that the actions of a private landowner have exacerbated the flood problems and the district council failed to take the necessary remedial action.

The landowner installed stop banks that forces the water over onto private properties. Even when the floods have broken through on the southern side of the Creek, he has gone down there with his bulldozer and has pushed the stopbank up again . . . They [TCDC] just would not pull their finger out and go and make the landowner pull down the illegal stopbanks. It was just disgraceful (Tairua resident 3).

Thirdly, the district council permitted development on the floodplain.

The Council continued to sell properties around the perimeter of the floodplain so that areas that used to be floodplain were sold. They were raised by 4m and sold as house plots. This reduced the size of the floodplain that was available (Tairua resident 10).

Fourthly, a lack of on-going maintenance by the regional council has been a cause of concern to local residents. "The Council should have been widening the stream, keeping it clean, removing the silt" (Tairua resident 9). In 2006 a stream maintenance programme and associated rating was established following

community consultation. Stream maintenance works were undertaken every 3-4 years (Waikato Regional Council & Thames Coromandel District Council 2011), but were considered by many residents to be insufficient. Residents felt that for many years the Council had overlooked, and in some cases contributed to, the flood problems of Graham's Creek.

These causes of the flooding, the residents argued, should have been taken into account by the Councils in their consideration of the mitigation project, specifically in terms of accountability and whose responsibility it is to pay for the flooding remediation works. This line of argument expands upon the discussion in Section 6.4.4. In the opinion of the 'at risk' community, whose responsibility it is to pay for the proposed mitigation works should depend not solely on who is directly to benefit from the works but also on the causes of the flood risk.

In the flood mitigation project, residents' views were presented to the district and regional councils through the forum of the Tairua Residents and Ratepayers Association. "A lot of the local people were really passionate about how to fix the problem but the Council was going in a completely different direction" (Tairua resident 12). As a result a feeling of 'them and us' developed and in this situation the working relationship between the Councils and the community was not cohesive and collaborative. Members of the community felt that the Council had a predetermined plan. "I believe they [the Council] had a preconceived concept and they were going to proceed with it whatever" (Tairua resident 1). This is also exemplified in the following quote:

Every time the community said 'fix the bridge don't worry about anything else and then let's look at what happens and see if anything else needs to be done'. That was absolutely 100% the feeling of the community at every public meeting. The Council continued to say 'no we know better, we will do these other things now or we will walk away' (Tairua resident 10).

This evidence shows that residents consider that local authorities have predetermined strategies and consultation exercises are merely a formality without the necessary share of power to influence and shape the outcome. This interlinks with the findings of Chapter 5, which revealed that procedural injustice is associated with exclusion from networks of access to participate and relationships

of power. Procedural justice is fostered by open opportunities for collaboration and deliberation and recognition needs to be explicitly included in this process. As the following section reveals, the way local government engages with local communities in the participatory process of flood risk management has justice implications.

### **7.2.2 The way local participation occurs requires a just approach**

Harnessing local knowledge is recognised by council officials as being an important part of the flood risk management decision-making process. A regional council representative stated:

Our team has a really strong focus on not just looking at the science but on the community knowledge. The locals are living in these areas and they have seen and lived the flooding. We can model it till the cows come home but it is quite different to seeing and experiencing it on the ground (Interviewee 10).

On the contrary, local residents did not feel listened to by the Council. As the following quote suggests, the community's local historical knowledge did not seem to make a valuable contribution to the project.

A lot of the people who live on Ocean Beach Road have been there for 30-50 years so they had a lot of anecdotal information . . . The decades of knowledge we had on Ocean Beach Road was ignored. It was not as if people did not know what they were talking about as history had shown them (Tairua resident 12).

Residents insisted that their local historical knowledge and views did not make a valuable contribution to decision-making process; rather, the focus was on the local authority's scientific reports and modelling. "I didn't think the Council listened as they were more concerned about their computer generated models and what they were telling us" (Tairua resident 12). Although local knowledge may be gathered through consultation, the weight it affords in the decision-making process is limited as local knowledge does not fit easily into technical models. Local government representatives need to carefully consider how to include qualitative data into modelling and ensure that the richness of local engagement is not lost. At the same time, transparency is required in explaining to communities

how consultation responses and local knowledge influence the decision-making process to ensure that feelings of fairness are generated.

Considerable resource commitment is required for public consultation and participation, as it does not achieve results in a short time period because with many people and opinions it is difficult to obtain collaborative work and a consensus. A district council representative advised: “The whole community had a say and WRC and TCDC were on a hiding to nothing. No matter what was said, to whom and how, it was not going to resonate with any majority” (Interviewee 11). The Graham’s Creek project demonstrates that engaging with the local community does not guarantee a successful project outcome, for this was the regional council’s third attempt at finding a resolution to the flooding problem. A regional council representative stated:

WRC were at the point of either the community needs to get behind this or we walk away and they have to live with the risk, because the cost and the time going into this, both from the Council and community, is so huge that one way or the other we have to put this to bed (Interviewee 10).

Council representatives suggested that too much consultation could be a destructive process. A district council representative voiced concern that:

WRC over-consulted by years and that added to the cost. What the community were seeing was a whole lot of talk-fests and associated bills, because it was on-going. When it became apparent that we were going nowhere but the costs were going up I think there was a bit of a realisation by the community that we had to move on (Interviewee 11).

It is important that planning officials value the consultation feedback and information provided by local residents. Staff education and training is crucial so that practitioners know how to draw out and act upon information provided by the general public. At the same time there has to be caution about consultation overload in communities as councils may consult on numerous different services through a variety of forums. Overlapping consultations may result in individuals becoming overwhelmed and consequently being disinclined to take part, which would undermine an authority’s local consultative and deliberate process.



The significance of public consultation and consultation in local decision-making is to get people meaningfully engaged. A district council representative advised: “I think that the most successful way I have seen is not necessarily with broad public submission processes but working with stakeholder groups, and that will be dependent on having good representation for it to be a meaningful process” (Interviewee 8). Stakeholder and iwi engagement should be incorporated throughout the risk management process. Discussions with iwi as *tangata whenua* during the Graham’s Creek flood mitigation project were well received. An iwi representative stated:

I am happy with the way [the project coordinator] went about including Ngati Hei in the whole process, right up to the official opening . . . We don’t have co-governance arrangements with Waikato Regional Council – not yet. But I certainly know that I can pop down to the office and have a free and frank discussion with Council staff (Iwi interviewee 1).

Respecting and valuing the interests of indigenous peoples in decision-making processes and policy-making is a crucial aspect of recognition and in delivering a just process. This section has shown that the way community participation and involvement in decision-making occurs needs to be carefully planned and managed so staff are suitably trained and advised, thereby ensuring a just process.

### **7.2.3 A working party achieves a resolution**

In order to progress the Graham’s Creek community engagement, a working party, comprising of regional and local council staff, community members and iwi representatives, was established by WRC to debate and discuss options. The working party enabled issues to become focused and leaders to be drawn out from the community of voices and opinions.

It [The project] really needed leaders . . . to keep it very strategically focused because people were trying to spread the project too far and wide. That would have basically put an end to it . . . We had to reinforce to the community that it was a strategic focus where we are working on solving the storm water and the flooding issue (Tairua resident 6).

A working party is a selective citizen participation process as opposed to a broad involvement of all residents. Selectively establishing a network of qualified contributors may not be a democratic process and relies on the judgement of an

organiser to establish who is best placed to represent the wider local community. For example, vocal individuals or representatives from special interest groups may promote themselves and their cause. Community groups, such as a working party, are not representative but are indicative of a community. Demeritt & Nobert (2014: 319) state that if the aim is to harness local knowledge to improve the quality of the flood risk assessment then dialogue should be restricted to participants that have specific knowledge. Taking such an approach, however, would be difficult and raise uncertainty as to how councils should go about identifying the participants that have valuable knowledge to contribute to the decision-making process.

When selected, it is essential to ensure that the working party is well informed. A regional council representative stated: “It takes time to build people’s understanding of the technical aspects of flood mitigation. So on the Thames Coast we put a lot of effort into education in setting up working parties” (Interviewee 10). Strengthening the relationship between the Councils and the flood-affected community was necessary to facilitate communications and build trust. A regional council representative commented that: “The first working party meeting was not pretty, in that there was no trust, no real appreciation from all sides about what the thoughts and issues were. There was a lot of trust and relationship building” (Interviewee 10). An informed and responsible public depends upon councils and stakeholders’ efforts to build trust with communities, particularly when difficult decisions need to be taken. The importance of trust in risk communication on natural hazards has been widely established in research, such as Paton (2007).

Once the potential contributions of the stakeholders had been recognised and acknowledged a process of mutual understanding and constructive decision-making began. A regional council representative explained the process of the working party:

With our technical lead, we took them different options and explained that these are the levels of protection and we asked them what they thought . . . But the group said ‘well hang on yes we have a flood risk but we also have a strong amenity value associated with this stream’ . . . The working party were challenging and questioning and we came back

with different designs proposing different options . . . The final design that we ended up with is a real reflection of the working party (Interviewee 10).

Community members on the working party felt valued contributors, as the following quote indicates: “When they take public people on a working party they have to listen and that worked well” (Tairua resident 10). Local residents perceived that the physical presence of meetings helped to achieve an outcome. “It was good to have those people who are going to deliver the project to be sitting around the table at the working party meetings . . . If it hadn’t been for the working party I don’t think we would have got the result we did” (Tairua resident 6). Working party consultation and involvement requires an adequate allocation of appropriate resources. A regional council representative explained: “Sometimes even when the engineers said it is just not feasible we had to investigate it to show to the community that they had been heard and then we could move on to the next step“ (Interviewee 13).

The working party for Graham’s Creek presented a shift in public participation to the start of the planning process so that it became a progression of “discuss – design – implement” (Wehn, Rusca, Evers, *et al.* 2015), rather than an approach of design a project then defend it to the community before implementation of the proposed works occurs. Any confrontations were therefore dealt with at the start of the process. Consequently, the role of a local resident involved in the working party has changed from being a customer receiving local authority services to one taking responsibility for flood risk management. A participatory model designed to empower communities so they are actively involved in flood risk management decisions builds a community’s sense of ownership and trust of the actions of councils. This is a more successful community engagement approach than consultation when decisions are solely passed to the public for their comments. The formation and involvement of a working party for Graham’s Creek increased transparency and promoted consensus building so that a negotiated outcome was achieved. The working party approach aligns with Lowe & Wilkinson's (2009) analysis which reveals that governance for sustainable development, and in this context flood risk management, is an intensely political process of argumentation and interest group intermediation.

#### **7.2.4 Justice implications of a participatory process**

The findings from the Graham's Creek project are consistent with the suggestion of Nye, Tapsell & Twigger-Ross (2011: 293) that mainstreaming 'soft' engagement and partnership building approaches within councils is a contextual and institutional problem, as well as an exercise in organisational learning. Evidence has demonstrated that regional and territorial authorities need to ensure that a collaborative approach is at the core of flood risk management rather than being an additional exercise. Stakeholder and iwi engagement should not be viewed as a separate process but should run through the whole risk management process. The construction of inclusive, participatory decision-making is central to environmental justice. The way public consultation and stakeholder participation occurs is significant for a just process.

Evidence in Section 7.2 has shown two key points. Firstly, that in making decisions about flood risk management, attention must go beyond public consultation exercises and the collection of local contributions to ensure that all knowledge that is created is woven into the process and given due weight by the decision-takers. Secondly, in seeking a just process of a participatory approach to flood risk management, procedural issues of which people should be included and how they should deliberate are essential considerations. In the Graham's Creek project, a working party was used to reach a resolution between local government, iwi and the community. Consequently, local participation was selectively implemented so that a network of active participants or qualified contributors was engaged rather than the broader involvement of all community members. Justice as recognition draws attention to uneven power relationships between stakeholders in the negotiation and decision-making processes.

### **7.3 Evidence of misrecognition**

With increased collaborative working and public engagement aimed at empowering flood risk communities, it is necessary to consider issues of recognition. Environmental justice calls for procedures that encourage active community participation, institutionalise public participation, recognise community knowledge and enable the participation of as much diversity as exists

in a community (Schlosberg 2004: 522). Analysis of the transcripts of interviews with residents from the three case study communities enabled identification of where and how matters of recognition were raised within the flood risk management planning process. Four core themes emerged - exclusion and marginalisation, concern of not being listened to, the undervaluing of local and historical knowledge, and barriers to Māori participation and engagement. Each of these issues is addressed in turn.

### **7.3.1 Feelings of exclusion and marginalisation**

Information about flood risk does not appear to be distributed equally to all residents. This is exemplified in the following two quotes: “I am a tenant. Living here we don’t know much but the owners might know more” (Thames resident 9). “Rental properties mean tenants are left ignorant of any threat” (Q100T). Tenants living in properties in ‘at risk’ areas are disadvantaged as council information is directed to property owners. As explained by a regional council representative:

I don’t think that tenants are prepared or know about the risk because the landlords who own the house who might have our reports . . . there is no way that they would hand them onto the people who are living in the house (Interviewee 2).

Property owners have more opportunity to take personal action than a tenant who may not be allowed to make structural changes to the property they rent or to install flood protection devices without the approval of the property owner, who then may demand a high rent to offset the improvements. Responsibility and cost for flood resilience is borne by the homeowner and this disenfranchises people who are unable to take proactive measures because of their status as tenants. Furthermore, tenants may not have content insurance to cover damage or loss to their belongings in a flood because of limited financial resources. As tenants may take less self-protection action, specific public risk communication provided by local government and Civil Defence should be addressed to this group. These agencies need to recognise the diversities and needs of socially marginalised groups, such as tenants, in their distribution of information, so that they are not denied the benefits of information on flood risk. Home ownership is a key indicator of injustice and demands that aggregated information is broken down.

Information on the socio-economic characteristics of a specific neighbourhood, such as the proportion of rental properties, could be used to guide flood risk management policies.

Residents recognise the value of being kept regularly informed of local flood risk. “The whole community, irrespective of whether you are a ratepayer or not, any Thames resident needs to be informed. The whole community needs to be collectively made aware of flooding possibilities” (Thames resident 14). A general lack of consultation was expressed in Thames. For example an interviewee stated: “They [TCDC] have never asked . . . They need to improve the way they manage their communication and interaction” (Thames resident 17). The value of effective communication between the state and communities ‘at risk’ is an issue that, as Chapter 8 reveals, is significant for the capabilities approach as well as for justice as recognition.

### **7.3.2 Concern of not being listened to**

In the interviews with local residents, WRC and TCDC faced criticism for being slow to listen, discuss and act. “Really they [the Council] had a deaf ear” (Tairua resident 4). “If they had listened to us a long time ago then things may have changed a lot sooner” (Tairua resident 12). Several interviewees suggested that a community has to push the Council to get attention. “Until they were pushed they [the Council] weren’t prepared to go back and look and listen to people who had the real knowledge” (Thames resident 16). The Councils were also criticised for providing poor two-way communication, as indicated in the following quote: “Their feedback was just about non-existent. They just didn’t want to know . . . Not listening in the early days and turning a blind eye to the problem” (Tairua resident 3). This led to a general feeling that public participation is cursory and community input is undervalued. “I think that they [the Council] have their own agendas and they work to them” (Thames resident 6).

In the instance of Graham’s Creek flood mitigation project, several interviewees felt that the Tairua community was blackmailed to accept a solution. As two interviewees explained: “TCDC would not fix the bridge unless WRC undertook to do these other things and it will be target rate charged . . . This approach was

nothing more than blackmail to the community” (Tairua resident 10). “The [Regional] Council have gone in and said it is basically all or nothing” (Tairua resident 9). These assertions about the scope of project implementation may be indicative of unequal power sharing during the negotiations and decision-making process. However, arguably, the regional council did listen to the present community opinion as they implemented a staged response to flood risk. A regional council representative advised:

We know that at Graham’s Creek we have made provision for, but have not built, the tail end of the stopbank because there isn’t community support for that at present. But we know with sea level rise and climate change it probably will become a problem (Interviewee 13).

This demonstrates that councils can only implement project stages that have community support, particularly if funding for works is to be attained through targeted rates.

### **7.3.3 Undervaluing local and historical knowledge**

Residents claimed that during deliberations of the Graham’s Creek flood project, government officials sidelined local knowledge and anecdotal historical evidence. “I felt that my opinion did not matter . . . they were not interested in the history and what I knew here” (Tairua resident 8). Instead Council staff focused on expert knowledge and computer modelling.

We were not listened to even at public meetings. Engineers did their reports and the attention was on computer modelling . . . If you don’t have a university degree they don’t think you have any knowledge and will not take on board the local knowledge and local experience (Tairua resident 9).

Similar feelings were expressed in Thames. “The Council went ahead and they engaged consultants to do the flood modelling work but they don’t actually involve the community at that level . . . I understand that decisions are based on modelling not on local knowledge” (Thames resident 8). This calls for the broadening of perspectives and the inclusion of local knowledge into planning processes. Local knowledge is often considered to be ‘lay’ knowledge, which implies that it is opposite to scientific knowledge. Community based participatory research needs to combine knowledge from local people and scientists, viewing

both as creators of expert knowledge. This aligns with Walker's (2009: 627) assertion that procedural fairness allows for "a fluidity of movement of people, ideas and perspectives across the boundaries of institutions and between differentiated elite and lay spaces, creating open rather than constrained networks of interaction and deliberation".

#### **7.3.4 Barriers to Māori participation and engagement**

It is widely recognised by scholars and practitioners that cultural beliefs shape the understanding of flood risk. In an interview, an iwi representative explained that flooding is viewed by Māori to be a natural process.

Graham's Creek, for instance, is really is not a problem for iwi because it is a natural phenomenon that has always come down that valley. People buy property there and don't realise that they have bought on the floodplain and now it becomes an after-thought . . . It is nature doing its thing, that is where we come from, that space. We adapt to nature, it is not us trying to adapt nature to suit ourselves (Iwi interviewee 1).

It may be argued that in the case of New Zealand other ways of knowing and valuing nature, and natural hazards, have been subsumed by Western discourse. This is exemplified in the following discussion:

You are living next to *Tangaroa* [the god of the sea] and *Tangaroa* does what it wants to do. Pick your house up and move it, because traditionally we don't build there. We have a different view of the coast and the sea. It is more of a food basket than it is for its value of having a coastal view from your property. There is a whole different way of looking at it. It is an indigenous way. The whole coast is beautiful but the closer you can build to the coast the more valuable your property becomes. It is all about materialism, capitalism and for us the indigenous, for the Māori, we have a different perspective of it (Iwi interviewee 1).

The connection between indigenous peoples and the land is both cultural and spiritual. The phrase *tangata whenua*, which has a literal translation of 'people of the land', embodies the concept of the inter-relatedness between the people and their environment (Sims & Thompson-Fawcett 2002). The special relationship



between Māori and the land has been recognised in a number of Treaty of Waitangi settlements. For instance, the Waikato-Tainui settlement (The Waikato-Tainui Raupatu Settlement: Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010) acknowledges that respect for *te mana o te awa* (the spiritual authority, protective power and prestige of the Waikato River) is at the core of the relationship between the tribe and their ancestral river. Rivers are important markers of personal and family identity and a connection to ancestral land. Care needs to be taken by local government practitioners to avoid seeing Māori as a ‘perspective’ or ‘alternative’ approach to the mainstream view, which promotes their marginalisation (Proctor 2010: 108). Incorporating local indigenous knowledge, through listening and a willingness to value *mātauranga* Māori (Māori knowledge and wisdom), may add depth to Western science of flood risk management and lead to the development of inclusive and acceptable solutions for *tangata whenua*.

Greensill (2010: 19) argues that planning policies and practices under the RMA are influenced by Eurocentric ideologies which conflict with Māori beliefs, values and practices. This, she asserts, leads to uneven power sharing. “Acknowledging the influence of colonialism on planning matters . . . assists one to understand how the council actually engages” (Greensill 2010: 89). Remarks such as this suggest that it would be beneficial to build stronger trust-based relationships than exist at present, to develop a sense of ownership of the planning process amongst Māori and define issues that are important to Māori.

The RMA, as outlined in Chapter 2, gives responsibilities for resource and environmental management to territorial authorities to fulfil and makes provision for Māori input into decision-making. A district council representative advised: “engaging with iwi sits very high on TCDC’s radar, that early engagement with iwi is mandatory” (Interviewee 11). An iwi representative, however, highlighted during an interview that the consultation process and the local authorities need to recognise that, “it is a different type of discussion than the community, it is more about *kaitiakitanga*” (Iwi interviewee 1). For Māori, *kaitiakitanga* is an inherent part of the exercise of *rangatiratanga* (self-determination) enabling Māori to have the authority to make their own decisions. The definition of *kaitiakitanga* at Section 7a of the RMA is seen by some scholars, such as Durie (1998), as a

narrow definition that fails to take account of the wider obligations and rights that the term encompasses for Māori. Durie (1998: 23) states that *kaitiakitanga* “denotes the burden incumbent on *tāngata whenua* to be guardians of a resource or *taonga* [a prized treasure] for future generations”.

Wright (2004: 45) asserts that, “Māori are receptive to the consultation process as it is an integral part of *tikanga* Māori [the Māori or the correct way of doing things]”. Nevertheless, how local authorities choose to engage with Māori will influence the quality and value of the participatory outcome. Poor channels of communication between *tāngata whenua* and local authority planners create grievances and mistrust. For Māori the *marae* (Māori meeting place) is the best place for the consultation process to take place, and therefore it may be more culturally appropriate for council staff to seek a meeting outside of their office. In the opinion of a regional council representative, costs, however, may prohibit meetings in *marae* from taking place. “If costs were unlimited you would like to be able go to a *marae* and interact with them [iwi] one on one and that is probably a better media for them, rather than writing submissions (Interviewee 1).”

The way participatory meetings are conducted signifies cultural recognition and respect. “Time is not an issue to Māori because they realise that discussions take the time they take” (Wright 2004: 42). *Manaakitanga* (hospitality), including sharing *kai* (food), is, for example, an important part of communication and consultation for Māori. The *tikanga* is governed by a consensus decision of the *whānau* or *hapū* (sub-tribe). The *kaupapa* is the philosophy principle that promotes a collective commitment and vision to achieve Māori aspirations for holistic wellbeing. “The *kaupapa* is that the issue under debate is always made collectively and follows the customary practices. The *kaupapa* still comes back to paying homage and reaching consensus” (Wright 2004: 21). Greensill (2010: 85) states that during the consultation process, *tāngata whenua* knowledge should be given equal weight to that provided by experts and when *kaumatua* (elders), as the repositories of specific knowledge, are giving evidence on a subject their knowledge carries more weight. Wright (2004: 42) maintains that, “recognition of a culture is part of the consultation process, so Council needs to up-skill staff on appropriate process and behaviour”. Skills requirement is recognised by local government, as the following demonstrates: “We have people specialised within

WRC that interact with iwi on our behalf” (Interviewee 1). This approach, however, compartmentalises Māori engagement and contributions as those practitioners who are directly involved in flood risk management are not the same personnel as those who engage with iwi. During the interviews for this research project, flood risk practitioners deferred issues relating to Māori engagement and participation in flood risk management to specialist iwi liaison officers. This signifies segregation between the two areas of knowledge and underlines the complexities involved in appropriate participatory practices.

Evidence suggests that responses from iwi are hard to obtain because much of the iwi participation is currently undertaken on a voluntary basis by individual iwi spokespeople. A district council representative stated:

Iwi are very time-constrained and we find it very difficult to get issues in front of iwi. I think it is made even more difficult in this area because we are still pre-Settlement. Post-Settlement I would imagine that iwi will have better resources and structures to enable Council to engage with them . . . It is not through want of trying, it is just the logistics of it (Interviewee 8).

Outstanding Treaty of Waitangi grievances with the iwi of the greater Hauraki region, which includes the Coromandel Peninsula, are currently being resolved. On 22<sup>nd</sup> December 2016 the Crown and the Iwi of Hauraki initialled a Collective Redress deed. The initialling of a deed of settlement signals the end of negotiations and it then requires ratification by members of the iwi, before the Crown introduces legislation to Parliament to give effect to the settlement. The demands for Māori input into many RMA issues, without the people and resources in place, explains the difficulty, expressed by practitioners and experienced by the researcher during the course of this project, in obtaining responses from iwi representatives. Māori participation is restricted by lack of people and financial resources and consequently Māori struggle to participate fully in RMA processes (Rixecker & Tipene-Matua 2012).

The nature of the relationship between local government and Māori continues to develop. An iwi representative commented that: “We hope to establish a real relationship with WRC, but I think that is going to happen through the Treaty claims process and co-governance arrangements” (Iwi interviewee 1). Section 33

and 34 of the RMA provide for the transfer of powers and delegation of functions from local government to another public authority, including iwi authorities. However, local authorities have generally been reluctant to relinquish their powers (Environment Foundation 2016). Sections 36b to 36e of the RMA (Resource Management Amendment Act 2005) makes provision for Joint Management Agreements (JMAs) as a way of encouraging collaborative management between local authorities and Māori. JMAs have the potential to recognise the status of Māori as *tangata whenua* and provide the potential for Māori to exercise *rangatiratanga* in relation to natural resources, resulting in an improved relationship between iwi and local authorities (Coates 2009). There is, however, limited use of JMAs outside of Treaty settlements (Simmonds, Kukutai & Ryks 2016). A notable exception is the Independent Māori Statutory Board, established through the Local Government (Auckland Council) Act 2009, which seeks to ensure Auckland Council takes the views of Māori into account when making decisions (Independent Māori Statutory Board 2017). The Board provides a step towards making the interests of Māori an integral part of policy-making and decision-making powers.

This assessment has shown that simply including iwi in the participatory process is not sufficient for justice as recognition, because the way the process of consultation is undertaken can create feelings of misrecognition and reveal unequal power sharing in the decision-making process. Barriers to Māori participation in flood risk management have been exposed as three-fold. Firstly, a lack of funding and resources inhibits the capacity of iwi to be involved, particularly in the pre-Settlement stage. Secondly, if *mātauranga* Māori is seen as ‘alternative’ or different it may be given low value by flood risk practitioners as it is difficult to assimilate it into Western science, where risk modelling and numerical tools dominate the decision-making process. Thirdly, a lack of understanding by councils of the importance and value of iwi participation in flood risk management indicates that local government practitioners may be slow to engage in meaningful discussions with Māori. Practitioners may engage with Māori to fulfil a mandatory requirement, rather than because it will bring value to the outcome. Unless a participatory approach is adopted, the sense of the planning process as a continued oppressive ‘colonial’ exercise amongst Māori will remain. Only when decision-making processes, in this case for flood risk management,

recognise and respect cultural perspectives of Māori philosophy and view of the natural world will Māori obtain social and environmental justice (Rixecker & Tipene-Matua 2012: 266).

#### **7.4 Discussion**

Evidence in this chapter suggests that to ensure a just process local government planning practitioners need to carefully consider four key issues for justice as recognition when creating opportunities for stakeholder participation in flood risk management. Firstly, attention must be given as to how to attain proactive knowledge production in ‘at risk’ communities so that local knowledge is valued and included in the decision-making process. Disparity exists between the attitudes and feelings of local residents within the case study community as some individuals consider that their position and views were recognised by the authorities, whilst other individuals who reside within the same locality felt excluded or marginalised. Residents who were members of the working party felt listened to and valued contributors as their local knowledge was recognised as useful and pertinent by the decision-makers and incorporated in the decision-making process. This aligns with the work of Honneth (1995, 2001) in his assertion that recognition is based on the psychological necessity of authentic recognition of others.

Secondly, evidence suggests that local authorities need to manage their consultation for flood risk management differently. An individual’s expectations of a council’s role and responsibility for flood risk management influences their feelings of fairness and justice. For instance, some residents argue that a council has an obligation to respond to its ratepayers. Politically, when combined, ratepayers are a powerful lobby group who demand protection of their private property interests. The level of resource commitment required for public involvement in local flood mitigation projects promotes the use of selective citizen participation, such as a working party, to both harness local knowledge and to achieve decisions for project implementation. This endorses the concept of a community voice that may be difficult to achieve without marginalising the views and needs of others. In the context of climate change adaptation, Few, Brown & Tompkins (2007) contend that rather than follow an “illusion of

inclusion” it may be better for participatory approaches to be narrowly instrumental and the scope and limitations of public involvement should be made explicit from the outset. Interviews with local residents discussed in Chapter 6 indicated that funding of flood risk management is a concern for many and shapes their discussions with council. It would therefore be beneficial for authorities to explain the realities of funding during the consultation process so that a community does not feel misrecognised at a later stage.

Thirdly, local government needs to ensure that in creating opportunities for community participation all social and cultural groups participate in the analysis of the flood risk problem and work together to develop solutions that are broadly acceptable to the whole community. Representation does not equate to inclusivity, for in the case of the working party dissenting voices were subsumed by a spokesperson so that discourses were homogenised. Such marginalisation of voices highlights the issue of who occupies the spaces of representation, and promotes consideration of the legitimacy and accountability of the working party approach as being truly representative of a community. Careful consideration needs to be given to the selection of contributors to the working party, in terms of whether it should be a democratic process or rely on the judgement of an organiser to establish who is best placed to represent the wider local community.

Perspectives of marginalised groups run the risk of remaining unnoticed if political inequality exists and groups are excluded from discussions. Tenants, for example, are marginalised economically and politically from decision-making if they do not have access to information about the assessment and management of flood risk within their rented property and local neighbourhood. Consequently “the voices of the vulnerable are not heard” (Byrne & MacCallum 2013: 167). As the preceding chapter established, utilising cost- benefit analysis as the basis for the distribution of flood risk management does not pay attention to particular group-specific perspectives. If territorial authorities fail to recognise differing vulnerabilities within a community in their decision-making for flood mitigation works their action may further exaggerate the local differences and exclude the most vulnerable from participating in the processes.

In focusing on economic value, cost-benefit analysis marginalises Māori values and the cultural significance of the physical environment. The cultural domination of a Eurocentric planning system can be seen as evidence that there is a marginalisation and devaluation of Māori perspectives of natural resource management and the requisite decision-making processes. This institutionalised form of misrecognition within the planning system can be considered a ‘status injury’. Co-governance is akin to Fraser’s (1997) proposal for ‘participatory parity’ or equality of status. For Māori, as with many indigenous peoples, prospects of delivering ecological justice appear integral to redressing misrecognition and legitimising claims for distributive and procedural justice. Misrecognition of place, from the perspectives of their inhabitants, needs to incorporate both environmental degradation and diverse understandings of environment and place (Upton 2014: 209). Recognition of diverse environmental knowledge, values and practices is key to the notion of cognitive justice, following Visvanathan (1998), which requires an explicit recognition of the existence and validity of different forms of knowledge beyond Western science. Identity politics, according to Upton (2014), is an important mediator of justice claims for resource rights, recognition and procedural justice.

Fourthly, the devaluing of social groups may have a spatial expression. Walker (2009: 626) asserts that the “misrecognition of people can be entwined with and realised through the misrecognition of places”. In a cost-benefit analysis, affluent neighbourhoods exposed to flood risk are prioritised for remedial action over areas of low cost housing, consequently these areas are legitimately devalued as their exposure to flood risk persists. Similarly, less affluent neighbourhoods, as in the case of Coromandel Town, may feel unable to pay for remediation works through direct benefit rating and thus remain exposed to flood risk. A focus on community-scale processes for flood management may limit the scale of demands made from a justice perspective. Findings in Chapter 6 suggest that there is a case for community involvement in higher-level strategic decision-making, such as in the allocation of resources for flood risk management across a region. As participatory processes are required to operate at a range of scales so must recognition. This demonstrates that the spatialities of environmental justice of flood risk management are multiple (Walker 2009a), encompassing space in terms

of proximity to risk as in distributive justice, and politics of scale, place and networks through recognition and participation (Holifield 2012).

Recognition, as Young (1990) maintains, is a social norm embedded in social practice. The planning processes must take this perspective into account and strive to assist and seek out cross-community participation to avoid exclusions. This aligns with Fraser's (1997) proposition that special treatment is justified if it helps marginalised groups to achieve equality in their ability to participate fully in flood risk management discussions. It is inadequate to rely solely on participation to achieve just outcomes. The key is to understand difference and accommodate particular needs within policy. If policy-makers fail to recognise differences both within and between communities at risk from flooding, specific needs and vulnerabilities may remain hidden and neglected in the formulation of policy interventions.

## **7.5 Conclusion**

This chapter's examination of justice as recognition has established who is given respect and valued in the participation and decision-making of flood risk management at the local level. Evidence in Section 7.2 has shown that to achieve justice as recognition in local participation, all knowledge that is created must be woven into the decision-making process and given due weight by the decision-takers. Meaningful participation implies active community involvement in taking decisions. Local residents in this research, however, expressed concern that councils have predetermined strategies. This data lends weight to the widely cited assertion by Arnstein (1969: 216) that "participation without redistribution of power is an empty and frustrating process for the powerless". As Section 7.3 revealed, councils need to demonstrate a commitment to giving people a voice and to a shared power to influence and shape the outcome of the flood risk management. Within the context of power sharing, managing community expectations is a challenge that councils need to embrace from the outset. Whilst working party arrangements are not inclusive, they empower a community to be actively involved in decision-making, promote trust and a sense of ownership of both their local place and the flood risk project. Which people should be included and how they should deliberate are essential considerations for a just process.



Misrecognition of the diversity within a community results in the needs of vulnerable groups being overlooked. Tenants may become marginalised as they are not adequately informed about the flood risk of the property or area in which they reside.

Case study evidence has shown that institutional processes of misrecognition create unequal patterns of recognition across social groups. For example, cultural processes of disrespect devalue indigenous peoples' contributions to the decision-making processes and their values and knowledge may be subsumed by the dominant Westernised view. Incorporating and valuing the role of local and Māori knowledge in the analysis of the flood risk problem and consideration of solutions is a prerequisite for just procedures. Additional staff training may be needed to ensure that the richness of local and iwi engagement is appropriately and sensitively gathered and that it is given equal weight and value in decision-making processes. Recognition has a central role in promoting the importance of understanding difference and accommodating particular needs in policy. Policy-makers need to make the interests of marginalised, disadvantaged and vulnerable groups a central part of the policy-making and decision-making processes.

Matters of power, representation and participation with regard to planning for flood risk management have been discussed in this chapter and provide insights into the injustices of recognition that may be experienced by communities living with the risk of flooding. The importance of culture, in respect of indigenous peoples, and the identification of social differences are tied to procedural justice. Recognition of identities and cultural practices is crucial to gaining self-determination of community flood risk management and for environmental justice.

Part of the capacity to cope relates to processes of lack of recognition, so that distributive inequalities and lack of recognition interact. Recognising diversities of vulnerabilities within and between communities at risk from flooding promotes consideration of a capabilities approach to justice for flood risk management in which the focus is on strengthening the capacity of less powerful communities and their members. This is examined in the following chapter.

## Chapter 8 Capabilities Approach to Justice

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### 8.1 Introduction

In a capabilities approach to justice, emphasis is on how resources enable people to function. Sen (1992, 1999, 2010) and Nussbaum (2000, 2006) incorporate a broad range of justice related concerns into the capabilities approach, including distributive equity, social recognition, public participation and procedural justice. The capabilities approach pays attention to “how distributed goods and bads affect people’s well-being, their functioning and agency, and how they can be transformed to support the flourishing of individuals and communities” (Tschakert 2009: 709). A capabilities approach judges justice in terms of people’s capability to achieve functionings they value (Schlosberg 2012). Thus it promotes the capability to have control over one’s environment, and gives people at risk from flooding the ability to have a voice in the decision-making process. In a capabilities approach justice is about people being able to live the lives that they consider worthwhile (Sen 1999; Nussbaum 2000). Justice depends on what people value, which leads Edwards, Reid & Hunter (2016) to assert that justice is fundamentally about achieving ‘well-being’. This accords with Ballet, Koffi & Pelenc (2013: 29), who state that “the capabilities approach is an attempt to renew the assessment of well-being”. In a capabilities approach, the physical, political, social and cultural conditions that create and sustain vulnerability to the impacts of flooding are drawn together.

This study considers capabilities as a fourth concept of justice, which is interrelated and interdependent with distributive justice, procedural justice and justice as recognition, as advocated by Schlosberg (2007). The capabilities approach may claim to be the appropriate ‘space’ in which to determine what justice should be; however, it does not have measures or a framework in which to assess flood risk management process against. The difficulty in application is borne out in the small number of cases, see for example Tschakert (2009) and Schlosberg (2012), in which the capabilities approach to justice has been applied. To develop an analysis of the capabilities approach to justice of flood risk management, this study is focused on establishing two issues – who should have the capabilities to manage flood risk and when.

A capabilities approach judges justice in terms of people's capabilities to achieve functionings they value. Within the capabilities approach justice is achieved with the active participation of individuals. Sen's (1999, 2010) argument is that it is what people achieve and are able to do that matters when making analyses of inequality and judgements of injustice (Walker 2012: 52). The issue of 'who' is concerned with identifying people who have a role to play in flood risk management. In this respect, capability applies to all individuals, extending beyond those individuals that are the current recipients of flood risk management. As established in Chapter 5, the 'community of justice' applies to all residents of New Zealand who may at some time or other be affected by flood risk. The procedural rights, distributive justice and justice as recognition examined in this study have primarily focused on the people at risk from the impacts of flooding. This, arguably, is not the complete picture as practitioners and stakeholders who are involved in managing flood risk have capabilities and limitations to their functioning. The capabilities approach widens the scope of examination to include the capabilities of practitioners and all stakeholders who are involved in the decision-making process of managing flood risk.

In focusing on the role the planning system plays in managing flood risk, this study examines pre-flood preparedness through risk reduction. The capabilities approach highlights the flaws in the flood risk management process, such as the way the planning system concentrates on vulnerability of place rather than the capabilities of people to adapt to flood risk. It demonstrates the close relationship that is required between planning and emergency management to effectively manage and reduce flood risk for New Zealand communities. Vulnerability is directly linked to the level of opportunities achieved when facing risk, so that vulnerability increases with flood risk and decreases with a person's opportunity to manage that risk. A capabilities approach offers a way to assess vulnerability to flood risk as it varies across locations and scale, to benchmark peoples' needs and identify goals for flood risk management (Schlosberg 2012). In embracing a capabilities approach, institutions and flood risk policies ought to evaluate vulnerability and develop risk awareness within communities as steps towards protecting and expanding people's capabilities to manage and reduce their individual flood risk and to minimise the impacts from a flood event.

Social aspects of vulnerability, in respect of who is resident and what their capabilities and capacities are to respond to a flood risk, do not appear from the case study data to be examined by planners. Evidence in this chapter finds that people's risk perception and awareness underpin how the community responds and what actions are taken to mitigate and manage individual household flood risk. This study considers firstly, how individuals and communities learn about the risk in their locality; secondly, how local government promotes and raises risk awareness to 'at risk' communities; and thirdly, how previous flood experience affects risk perception and risk acceptability. Through this, Section 8.2 establishes how people's flood risk mitigation behaviour facilitates a community's resilience. Evidence revealed four key issues. Firstly, in spite of access to information, the local level of flood risk may not be well understood by residents living in areas at risk of flooding. Secondly, residents' risk awareness does not necessarily lead to participation in protective household action. Thirdly, the perceived responsibilities of flood risk management affect the protective behaviour of residents living in areas at risk of flooding, so that the degree of trust in institutional responses and on structural flood defence measures inhibits personal action. Fourthly, capacity to act, notably the financial limitations of a household, may constrain risk mitigation behaviour. The implications of these findings are discussed in Section 8.3 from a capabilities perspective.

## **8.2 Social considerations in flood risk management**

Building community resilience and facilitating community empowerment are part of environmental justice activism. Community resilience is a popular conceptual framework across many disciplines for assessing and building the capacity of communities to support well-being in the face of environmental change and risk. This research has shown that in land use management, local authorities consider the vulnerability to flood risk of a community, or a geographical part of a community, as a place rather than the vulnerability of distinct sub-groups or individual residents. Similarly, local government's emphasis for resilience against flood impacts is on community functioning, as opposed to viewing the environmental threat as an individual experience.

The case study example of the Graham's Creek floodway improvements in Tairua illustrates how residents, through the local interest group of the Tairua Residents and Ratepayers Association and a working party, articulated their concerns to local government bodies from a community standpoint. This aligns with the work of Schlosberg & Carruthers (2010), who assert that contemporary movements for environmental justice, contrary to traditional liberal political thought, do not limit the understanding of injustice as faced only by individuals but seek justice for communities. This dovetails with the evidence discussed in Chapter 7 that misrecognition is embedded within a community and is not solely an individual experience. A capabilities approach judges justice for both individuals and communities to achieve functionings they value. Sen (1999, 2010) argues that people should have the opportunity to determine the capabilities necessary for functioning in their community. In this regard, a community at risk from flooding should have the ability to collectively determine the level of flood risk management that is required to maintain a safe environment in which to live.

To assess whether the capabilities approach is endorsed within the flood risk management process in New Zealand, an examination of how social considerations are taken into account by decision-makers is undertaken. Evidence has shown that whilst consideration of place-based vulnerability, in terms of exposure and susceptibility to a flood risk, is used in risk informed decision-making, social aspects of vulnerability appear to be overlooked by planners. Vulnerability to flood risk depends on people's risk perception and awareness, which in turn influences flood mitigation behaviour of households and the collective action of the community – the coping mechanisms that are adopted.

### **8.2.1 Social aspects of vulnerability**

As revealed in Chapter 5, planning in New Zealand does not recognise the differing vulnerabilities of people living within an area; rather, it is concerned with controlling future land-use on the basis that owners and occupiers of land will change with time. Currently only 2.9% of the district plans discuss and assess vulnerable communities in their district and no regional policy statements undertake an assessment (Saunders, Beban & Coomer 2014: 23). Evidence from interviews conducted for this research corroborate this finding and indicate that

planning officials do not consider the vulnerability of communities, in terms of the demographics of who is resident and what their capabilities and capacities are to respond to a flood risk. A district council representative articulated that the distribution of flooding has no social boundaries. “The flood event occurs where the flood event occurs, whether it is a lower or higher socio-economic group is not relevant. Rain doesn’t select” (Interviewee 3). A regional council representative explained that:

It doesn’t matter if the community is rich or poor or well or poorly socially connected, or any of those indicators of vulnerability, it is better just to decide at what level you are prepared to accept that risk occurring (Interviewee 12).

This quote highlights, and verifies evidence discussed in Chapters 5 and 6, the importance planning practitioners place on defining and delineating risk acceptability as a guide for where to prioritise flood management. Whilst consideration of vulnerability is used as the basis for risk informed decision-making, in terms of the exposure and susceptibility of a place to flood risk, social aspects of vulnerability are not taken account of by planners. This narrow attention on physical vulnerability is in contrast to the capabilities approach, which advocates looking at the physical, political, social and cultural conditions that create and sustain vulnerability. The capabilities approach seeks to understand the impacts of flood risk on the people who are exposed and looks at individual circumstances.

As explained in Chapter 7, district plans do not take account of spatial variations in the impacts of flood risk or pay attention to the differences of how flood risk is experienced by vulnerable groups. A lack of recognition is linked to the capabilities and functioning of individuals and communities at risk of flooding. To understand the vulnerability of a place and the individuals and communities that reside therein, a diverse knowledge base is needed, which incorporates the viewpoints of stakeholders (Adger 2006). Local communities should be involved in discussions about local vulnerabilities and in identifying their own vulnerabilities, thereby included in the participatory process of flood risk management. This aligns with Sen's (1999, 2010) argument that capabilities are negotiable and subject to citizen deliberation. As the previous chapters have demonstrated, public discourse and community deliberation on flood risk

management are central to ensure a just process. To understand vulnerability planners need to look at how people perceive, adapt and cope with the risk of flooding and its impact.

### **8.2.2 Risk perception & awareness underpin community response**

Understanding public perceptions of flood risk is critically important for all agencies involved in flood risk management as risk perception influences the resilience of individuals and communities at risk of flooding. People's perception of flood risk influences their own fragility to risk, as risk perception shape the actions or coping mechanisms that are adopted at a household level and are undertaken collectively by the community. Research, such as Rufat, Tate, Burton, *et al.* (2015), has shown that risk perception is influenced by historical context, an individual's knowledge and previous experience of flooding. A district council representative commented that: "Most people and most communities have quite short-term perceptions of flood risk and their memories of historic events tend to be reduced or pushed back in time" (Interviewee 4). In considering capabilities, it is important for this study, firstly, to consider how individuals and communities learn about risk in their locality. Secondly, to identify how local government promotes and raises risk awareness at the local level. Thirdly, to recognise how previous flood experience affects risk perception and risk acceptability. These are addressed in turn.

From the primary data collected in the case study communities, 96% percent (n=93) of respondents to the questionnaire were aware that the district council has demarcated areas in the district plan as being at risk of flooding. The survey revealed that 19% of respondents considered their level of awareness of local flood risk to be very high, 32% to be high and 40% to be moderate (n=18, n=31, n=39 respectively). The importance of local people being able to interpret and understand local flood risk from the information provided by authorities was recognised by a district council representative: "People need to understand what a flood hazard map means for them and where the risk is coming from and what they will need to do to mitigate that" (Interviewee 4). Only 69% (n=67) of respondents to the questionnaire had seen a flood hazard map for their local neighbourhood. Nonetheless, there was overwhelming agreement by residents that

flood hazard maps are very useful or somewhat useful - 44% and 46% respectively (n=43, n=45) - at informing residents of the risk of a future flood event. Only 4% (n=4) of respondents consider flood hazard maps to be not useful.

Flood hazard maps in district plans are not sufficient alone to inform the public, complementary explanatory notes are required to provide contextual information. The use of confusing terminology and wording may prevent people's ability to interpret information and hinder public recognition of the actual risk. A district council representative explained that: "People's perception is based on the 1 in 50 or 100 years, but in reality it can happen more regularly than that" (Interviewee 3). Consequently, flooding often becomes an existential threat to individuals. As a regional council representative remarked: "Some members of the communities are a little blasé about the risk and don't really realise" (Interviewee 14).

Even if, as has been ascertained in Chapter 5, access to information is available, the issue for local government is how to encourage local residents to consider the flood risk information that is available for their locality. Deciding upon the best-practice communication strategies is a challenge for local government across many services. For example, one local resident admitted:

They do put out regular newsletters but I am afraid that I am a bit guilty of just skimming it and thinking 'oh it will be alright' . . . I am a bit of a fatalist if it is going to happen it will (Thames resident 1).

To promote engagement and to build local awareness, local government agencies need to tailor how flood risk is communicated to different groups. For example, older people may prefer printed newsletters whilst younger generations may respond better to web-based information gathering devices. To reinforce the message of flood risk to the general public, local government needs to provide consistent messaging that is responsive to the local context. At the same time, and as highlighted in Chapter 7, it is important that risk communication is a two-way process enabling the public to actively engage so that councils understand the range of views and values in the community. This suggests that the capabilities of planning practitioners to effectively communicate with communities needs to be considered and improved upon through staff training.



People who have experienced a flood event tend to have greater awareness and perception of flood risk than those who have not (Burningham, Fielding & Thrush 2008; Fielding 2012; Kellens, Terpstra & De Maeyer 2013). A district council representative commented that:

If it [a flood event] has happened within the past 5 years, and they have been around to experience it recently, they are really enthusiastic about getting things done. That is generally the impetus that the Council uses to put in the protection works and to put in [policy] overlays (Interviewee 4).

This quote aligns with research by Wehn, Rusca, Evers, *et al.* (2015) that citizens' first-hand experience of flooding is reflected in their interest to participate in flood risk management, so that low risk awareness amongst members of the public acts as a barrier for participation. The importance of raising risk awareness and understanding to ensure positive community and council collaboration, was highlighted by a regional council representative:

It's about getting the New Zealand public more aware of these issues and being more accepting of the fact that we don't know all the answers; but if you are on the coast or on a low-lying area or near a river there are risks and you need to know those risks (Interviewee 6).

The perception of risk and its acceptability is influenced by the risk-benefit ratio. People make decisions based on their evaluations of potential gains and losses associated with the exposure to a risk. For example, people may choose to live near to a river or coast on the basis that the surrounding natural amenity value and recreational opportunities outweigh the risk of a future flood. A regional council representative suggested that risk acceptability is a key issue for communities to consider.

What do people see as acceptable, tolerable or intolerable? This is the question that we need to be asking our community. It is going to be a hard one to really pin down, on how we go about it, because:

- (a) what is a community? and,
- (b) it is affected by what people's personal experience of hazards have been [*sic.*] (Interviewee 6).

Thus, there is a fine line for all communities between what is an acceptable level of risk and what is not, and this depends on local circumstances and the public's risk perception.

Three lessons for a capabilities approach to justice have been learnt from the case study data and supported by literature on risk perception and awareness. Firstly, information from flood hazard maps depends on people's ability to interpret and correctly understand the local context and its flood risk. This extends the procedural justice of having access to information to the capabilities of residents being able to interpret maps, explanatory notes and terminology that outline local flood risk. Secondly, to adopt a best-practice communication strategy, local government must tailor how risk is communicated to different population groups using a variety of methods that are responsive to the local context. In light of this, planning practitioners need to consider their own capabilities at communicating with communities at risk of flooding and up-skill appropriately. The capabilities of both the local population at risk from flooding and those of local government practitioners to assess and manage flood risk are pertinent considerations. Thirdly, previous personal experience of flooding increases awareness and perception of risk, and furthers residents' understanding and support of local government policies. This brings attention to the need for planners to recognise differences in the experiences of people vulnerable to flood risk. The capabilities approach offers the flexibility for addressing local variability in the experiences of and responses to flood risk. As the next section discusses, improving risk awareness as a way of encouraging flood mitigation behaviour is an important tool in contemporary flood risk management.

### **8.2.3 Adopting household flood risk mitigation behaviour**

The need to ensure that individuals accept some personal responsibility for protection against flood risk and to foster understanding of the changing nature of climate risk was recognised by both council staff and local residents. A regional council representative advised that:

We need to put the onus back on the individuals a bit more. If they are willing to go and buy a place on a nice sunny day and when it turns

nasty and the water is everywhere they cannot cry ‘you should not have let me buy here’ (Interviewee 14).

Similarly a local resident acknowledged that:

You weigh up the pros and cons and they [residents] have decided that there are more pros being right by the sea and on the flat . . . They should have done their background research and found out before moving there (Thames resident 1).

A capabilities approach demands that two key issues are taken into account by local government in their role of managing flood risk. Firstly, and as established in Section 8.2.2, whether individuals are capable of determining their flood risk and of understanding an increase in risk in their neighbourhood, associated with climate change and rising sea levels, through the information to which they have access. Secondly, whether individuals residing in the locality are capable of taking personal responsibility to protect themselves against flood risk.

The questionnaire recorded that residents’ consider their awareness of flooding to be high, however their responses indicate that residents are not actively adopting household-level protection measures. Whilst 95% (n=92) of questionnaire respondents have home insurance and 69% (n=68) undertake physical works, such as clearing drains around their property, only 43% (n=42) had moved items out of harm’s way within their property and only 20% (n=19) had installed property protection measures, such as door barriers or raised floor levels, to minimise damage caused by a flood event. This data suggests that residents’ risk awareness does not necessarily lead to protective responses being undertaken.

The perceived responsibilities for flood risk management affect the protective behaviour of residents living in areas at risk of flooding. Householders may blame policy-makers for not doing everything they can to prevent flooding, as evidenced in Chapter 7, whereas policy-makers expect householders to take personal action to protect themselves thereby lessening the impact if a flood event occurs. Clearly there is a shared responsibility for managing flood risk. As a local resident reasoned: “You need to remember that an individual on its own cannot mitigate for flooding” (Thames resident 2). In a multi-faceted approach to flood risk management, where multiple options are being used to manage flooding, there is no clear line between the public and private responsibility (Johnson & Priest

2008: 523). The concern is that risk at the local level is not well understood by the risk-takers, as supported by evidence in the preceding section, and this inhibits their capabilities to mitigate their risk. Evidence in the previous chapters has also indicated that not all citizens may desire responsibility for their individual and community level mitigation. Research, such as by Bubeck, Botzen & Aerts (2012), has considered the willingness of individuals to undertake private mitigation measures. As the level of residual risk increases as climatic conditions result in flood events occurring beyond the designed flood mitigation measures, more responsibility for flood preparedness is, nonetheless, being directed to local residents.

The degree of trust in institutional response may influence individual mitigation behaviour. Residents' interview responses suggest that if structural flood protection works have been undertaken, the public's assumption is that all will be fine. "I am quite happy with what is happening, it seems to be under control" (Thames resident 1). A resident suggested that complacency develops within the community.

For many Thames people it is felt that for flooding issues activity has been done and mitigation has been put in place . . . The risk of flooding is that you get complacent . . . From a community interest it is not topical and not something people talk about at the moment (Thames resident 2).

Residents may have a false sense of security so that optimistic residents perceive that their properties are 'protected' by stopbanks/levees and landowners whose properties are located outside hazard lines may be overconfident in their future safety. This data lends weight to the argument that structural flood defence measures transfer responsibility to local government and stifle adaptation, as residents perceive that there is no need to adapt their own behaviour and, in feeling safe, people build new houses behind stop-banks (Terpstra & Gutteling 2008; Lawrence & Quade 2011: 17). A reliance on structural flood defence measures inhibits the capability of individuals and communities to maximise their own risk protection and mitigation behaviour. Thereby, constraining the capability of local government to rely on individuals to diligently respond to an identified risk.

To encourage the installation of protective measures, risk communication should contain information on the effectiveness of household flood mitigation measures, their estimated cost and guidance on how to implement them (Bubeck, Botzen & Aerts 2012; Grothmann & Reusswig 2006). Nevertheless, capacity to act may constrain individual response. For example, economic resources and property ownership provide choice and the opportunity to take independent action through making physical alterations to a property to limit flood damage and purchasing insurance. Conversely, poor households and tenants may be disadvantaged in their capacity to act. In the privatisation of risk, in which communities have become more responsible, ‘social capacity building’ comes to the fore (Kuhlicke, Steinführer, Begg, *et al.* 2011). Yet, evidence from this research suggests that local government is not endeavouring to understand and reduce the existing inequalities in vulnerability.

Evidence in this section has revealed that the development of personal risk awareness influences behavioural response but does not necessarily lead to individual action being taken. The capability to manage and mitigate flood risk at an individual level is influenced by three issues. Firstly, the perceived responsibilities for flood risk management affects the level of action individuals take, as people exposed to a flood risk may not realise or desire the personal responsibility that local government expects and demands households in ‘at risk’ locations to adopt. Secondly, individual response may be swayed by the degree of trust in institutional response. Structural flood defence measures create a false sense of security, and inhibit the capability of individuals and communities to maximise their own risk protection and mitigation behaviour. Thirdly, individual capacity to act may constrain individual response. Whilst economic and property ownership provide choice, conversely they limit the actions of disadvantaged households. Tenants, for example, may be marginalised in their awareness of the risk as information provided by local government is directed to property owners and they are constrained in the physical protective responses they are able to make to a rental property. Flood risk mitigation behaviour facilitates community resilience.

#### **8.2.4 Community resilience & sustainability shape flood risk management**

The measures to address social vulnerabilities and improve resilience in communities vary depending on local context. Resilience in flood risk management, as outlined in Chapter 2, is the ability to return to stability, to absorb shocks and to transform through adaptation to become equipped and cope with the impacts of flood risk (White & O'Hare 2014).

A district council representative stated: "I guess the wider paradigm [of a risk-based approach] is resilience, which isn't really talked about in legislation" (Interviewee 9). The RMA and planning do not directly address resilience. Saunders, Beban & Coomer (2014) found that only 7.2% of district plans and 4% of regional policy statements in New Zealand include resilience. The concept of resilience is advocated in only the CDEM Act. The importance of creating resilient existing communities therefore rests primarily with Civil Defence and is reliant on emergency management strategies. A regional council representative confirmed this stance: "Resilience comes into it where you have an event that is above a level of service that the regional council provide and that's where Civil Defence comes in" (Interviewee 6). Civil Defence engages with communities in the preparation of community emergency response hazard plans. The 2010-2011 Canterbury earthquakes and the more recent 2016 Kaikoura earthquake have raised community awareness of the need for resilience in New Zealand. A district council representative and Civil Defence controller commented: "As we go round each community their understanding of resilience and management of situations has grown tenfold in the last few years, probably as a result of Christchurch" (Interviewee 11).

Scholars and practitioners are increasingly recognising that there is no longer a separation in the approach to risk management between short-term resilience and long-term sustainability (Scott 2013). A district council representative concluded that: "At the end of the day, it is all about resilience and it isn't just environmental resilience; it's about economic and long-term sustainability of communities" (Interviewee 9). Similarly, an independent natural hazards consultant considered: "I think more and more there is the thinking around that long-term sustainability; if, in fact, you regard flood protection as being sustainable" (Interviewee 5). The

issue of whether flood risk management is sustainable in the long-term is becoming a focus of attention for government. A district council representative advised:

No one likes to hear that when they have paid all this money the structures will fail. That is the nature of flood hazard and with the whole prospect of climate change we now have more intense storms. The issue is not going to get easier. You start to ask the question whether it is appropriate to talk about relocation and that is a conversation that has not been had with the communities yet (Interviewee 9).

As discussed in Chapter 5, the complexity of managed retreat demands greater guidance from central government to steer local government and enable councils to engage in early discussions with communities.

The definitive goal of flood risk management is to achieve community resilience and sustainability to the risk of flooding. Developing adaptive planning strategies is complex over the short-term but “laudable” in the longer-term (Tobin 1999). The relationship between community resilience, sustainability and flood risk requires consideration of social, economic and political factors to which environmental justice provides a framework. Sustainability is context-specific and justice is an intrinsic element in the route to sustainability, as promoted in the notion of ‘just sustainabilities’ (Agyeman, Schlosberg, Craven, *et al.* 2016). A resilient and sustainable community requires not only appropriate land-use initiatives but also procedures and resources that ensure communities are engaged and empowered to take part in the planning process to reduce their risk to future flood events (Saunders & Becker 2015). Continuous engagement between local government and flood risk communities is necessary to achieve collective understanding of changing flood-risk response options. The capabilities approach allows for consideration of human agency, in terms of individuals and communities making their own free choices, and participation in environmental decision-making - both considerations are key to sustainable development.

### **8.3 Discussion**

The capabilities approach provides a descriptive and an evaluative approach for assessing policies and strategies for managing flood risk, in terms of stating what

is and establishing criteria and guidelines for what ought to be. Whilst the identification and prioritisation of capabilities involves value judgements and generates social choice, it does not identify a best course of action but considers options. An informed value judgement between alternative flood risk management strategies will need to be made by stakeholders - a process that includes public scrutiny and debate. Participation, deliberation and public involvement in enabling control over a community's own environment and establishing appropriate 'well-beings' is central to the understanding of a capabilities approach to justice. A capabilities approach cannot be "a top-down, expert-driven affair" (Schlosberg 2012: 458), but demands the meaningful involvement of community members. Communities need to be involved in mapping their own vulnerabilities and their own particular needs, and designing and directing policies to protect them from or enable them to cope with increased flood risk. For people in New Zealand to have a meaningful involvement in flood risk management, so that they participate in and influence the decision-making process, a social contract is required with local government for community engagement on a continuous basis.

Localised discourses and perceptions of vulnerability to flood risk may, however, differ across communities. Therefore, it is important to engage all people within the 'at risk' community in democratic participation and decision-making about just flood risk management policy. The Graham's Creek project, outlined in Chapter 8, provides an example of an inclusive participatory process. As the proposed flood mitigation scheme was to be financed through local rate funding, all households directly affected were asked, through a newsletter (Waikato Regional Council 2014b), to provide 'a compelling reason' in writing if they could not give their support for the programme of floodway improvement works. Providing information to enhance peoples' awareness of flood risk and changing climatic conditions, alongside information that highlights the benefits to be gained from the proposed flood management, may help to reduce individual unwillingness to fund community protection measures or resistance to engage with the process of flood protection. Injustice would be found in limiting the capabilities of people to assess their flood risk and decide upon appropriate management strategies.



The capabilities approach is not exclusively about equality as it assumes that society incorporates diverse people with different levels of power, efficiency and interests. It recognises that people differ in their ability to convert resources into valuable achievements, such as household income into flood protection. The findings of Section 8.2 suggest that policy needs to focus on the functionings people in 'at risk' communities actually achieve rather than the opportunities. Case study evidence has shown that raising awareness of flood risk does not necessarily improve a community's flood resilience as other personal factors, such as the perceived responsibilities for flood risk management and cost considerations of installing mitigation works, may intervene and prevent action being taken.

Communities may have the opportunities to shape flood risk management policies, as discussed in Chapter 5, but the issue is whether they are achieving and implementing the risk mitigation measures they require. This is where the necessity for monitoring and evaluation of flood risk policies and objectives is evident. Nationally consistent non-structural strategies, such as improved building codes and self-help adaptation schemes, may offer benefit to all, but differences in their achievement may become evident. Self-help adaptation schemes would require state-assistance to ensure universal adoption by all households at risk from flooding, so that cost is not a barrier to installing property level mitigation measures. It would, therefore, be extremely costly to implement. A solution would be to promote state intervention that targets public resources to the most vulnerable households, a policy approach that Johnson, Penning-Rowsell & Parker (2007) maintain embraces justice principles.

In utilising the capabilities approach, judgements would be based on whether the development of flood risk management policies and practices correspond with democratic norms and whether their distributive outcomes enhance the capabilities of the relatively disadvantaged. Capabilities and functionings are plural so there is no one measure that specifies which residents will be most adversely affected by a flood event, either through missed opportunities or achievements. In practice, the clustering of different dimensions of deprivation means that it may be possible to identify the most vulnerable persons and neighbourhoods to flood impacts. This was demonstrated in the flood risk

overlays for Thames in Chapter 6. By enhancing the capabilities of the relatively disadvantaged, the distributive outcomes of policies would make justice more explicit than current practice. A socially just response to flood risk would favour the most disadvantaged, specifically those people with the least capability to deal with floods. For example, a more sensitive analysis than the cost-benefit of a local project would consider who is likely to benefit from the flood risk management proposals and assess what outputs each group in the population would receive. The subsequent selection would be based on which flood risk management approach benefits the most vulnerable group or at least does not harm them.

The capabilities approach promotes the design of strategic policies aimed at reinforcing people's capability. In so doing, it improves the resilience capacity of a community to manage flood risk. Capabilities approach to justice is, in this context, about removing aggregations. Flood prone areas are treated as one aggregate zone posing equal risk to all residents. This study has shown that planners would benefit from considering social differences in how the impact of flood risk is experienced and by whom. Vulnerability assessments using flood risk modelling tools look at aggregated indicators, however this study argues that there is a need to break down community assessments and look at the vulnerability and coping capacity at the household level. Disaggregation is required to compare the impacts of flood risk amongst different populations, so that the smaller the aggregation of data is the more accurate the reflection of vulnerability to a flood risk will be. This calls for adjusting the emphasis of attention away from identifying and prioritising areas of high flood risk to paying attention to the capabilities of individuals and communities to manage and respond to their individual and collective flood risk. It is, however, not sufficient to argue that the only aspect that matters for justice is that people have maximum levels of capabilities. Injustices in flood risk management ought to be assessed in terms of both functionings and capabilities so that the metric of justice is equality of outcome and of opportunities. A weakness of the capabilities approach to justice is that it does not provide answers as to how to trade-off different dimensions, such as raising taxes to provide universal self-help adaptation methods, and this is critical if the cost-benefit analysis is to be replaced as a method for policy decision-making. Proposed flood risk management measures for a community

need to be evaluated on their potential to increase building resilience and this warrants the inclusion of both social and economic benefits in an analysis.

#### **8.4 Conclusion**

Evidence has shown that in risk informed decision-making, social aspects of vulnerability appear to be overlooked by planners. Vulnerability to flood risk depends on people's risk perception and awareness, which in turn influences flood mitigation behaviour of households and the collective action of the community – the coping mechanisms that are adopted. If residents are not fully aware of the specific flood risk in their locality they cannot adapt and become resilient. Consideration needs to be given by local government to the capabilities of residents to interpret and understand flood risk information and thereafter the differing capabilities to transform knowledge into action. Willingness to act is not sufficient as barriers may limit people's opportunities to engage with flood risk management. For example, tenants may not possess the capacity to alter their dwelling and property owners may not have financial ability to pay for the installation of household protection measures. As Section 8.2 discussed, the adoption of household flood mitigation behaviour is affected by the perceived responsibilities for flood risk management and the degree of trust individuals place in the institutional responses to an identified risk. Community resilience for flood risk management demands the recognition and endorsement of public and private responsibilities. Consequently, the capabilities of planning practitioners to effectively communicate with communities their flood risk, its local context and the role and responsibilities of all stakeholders needs to be considered and improved upon through staff training.

A capabilities approach can be employed to understand the needs, rights and political processes that communities require to engage with flood risk management and to adapt to increasing flood risk. A capabilities approach demands that informed value judgements for flood risk management are taken that involves stakeholder and public scrutiny in the debate of options. The political mobilisation of the 'at risk' community is important in a capabilities approach to justice, in which the focus is on what the communities think about flood risk management and the lives they value. The way 'well-being' is defined and

protected is fundamental to the kind of justice that is delivered through a capabilities approach (Edwards, Reid & Hunter 2016). A capabilities approach to justice requires local government to embrace the diversity of individuals and communities and recognise the multiplicity of local environmental struggles. In focusing on the functionings of people in 'at risk' communities, state-assisted social capacity building is needed for the most vulnerable population.



## Chapter 9 Conclusion

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### 9.1 Introduction

Following an international trend, the flood defence approach historically applied in New Zealand has been superseded by a shift to flood risk management, an approach that aligns with the notion of ‘living with risk’ and devolves responsibility to risk-takers at the local level. Citizens are, consequently, required to assume responsibility for assessing and minimising their own exposure, increasing their resilience and adapting to periodic flooding events. Inevitably, specific communities respond differently to flooding as their capabilities to understand, identify and manage flood risk varies, which has justice implications. This research critically analyses the environmental justice implications of the planning policy and practice of flood risk management in New Zealand. It investigates to what extent planning is complicit in delivering flood risk management processes that can create environmentally unjust outcomes. Environmental justice makes claims and assertions about what constitutes justice and fairness for people living at risk of flooding. This analysis of flood risk management demonstrates how the environmental justice components of *procedural, distributive, recognition and a capabilities approach* to justice are tied together in the political and social processes of managing floods.

### 9.2 Review of research objectives

The first objective, **to evaluate the theoretical relationships between risk, environmental justice and flooding**, has been addressed in Chapters 2 and 3.

The individualisation of risk forces, or relies upon, people living in areas of flood risk to take an active role to mitigate and adapt. The risk society perspective hides the differential impacts of risk and fails to take account of contextual variations in which risks are interpreted and negotiated (Tulloch & Lupton 2003). Attention on responsibility threatens to ignore the processes of delivery, and calls in to question decision-making and the power to make choices about the prevention and mitigation of risk.

Johnson & Priest (2008: 524) assert that for a multi-faceted approach of public and private responsibilities for flood risk management, the decision process must be participatory, transparent and accountable for all citizens. Democratic processes can, however, lead to exclusionary practices. Running counter to collaborative planning with its emphasis on democratic decision-making, Fainstein (2010) asserts that planners whose aim is justice need to intervene in the planning process and call for policies that favour low-income and minority groups. An inclusive approach to decision-making, that actively seeks out voices of marginalised or disadvantaged socio-economic groups, draws on Young's (2000) argument for deliberative politics and Fraser's (1997) claim for 'participatory parity'. The notion of participatory equality justifies special treatment if it helps peoples' ability to participate and avoids misrecognition. This is essential in New Zealand if the cultural perspectives of Māori are to be recognised and provided for in decision-making processes.

Environmental justice demands decision-making procedures that recognise community knowledge and cultural diversity within communities. Difficulty, however, exists in how to connect local, historical and cultural knowledge into decision-making tools that are focused on quantitative information and give precedence to economic considerations. Tools, such as cost benefit analysis, do not provide for procedural equality as economic efficiency dominates over social considerations. Landström, Whatmore, Lane, *et al.* (2011) advocate a co-production of knowledge and suggest that scientists need to reposition their modelling practices so that they generate new knowledge about the particular locality that is exposed to flood risk.

A just process demands consideration of how a decision was taken, by whom and investigates the criteria that were used to prioritise an area exposed to flood risk over other places. Critics of the new risk governance, such as Walker, Tweed & Whittle (2014), argue that power relations continue to play an intrinsic role in policy negotiations and maintain that decision-making is dominated by a few powerful individuals or organisations. This demonstrates Harvey's position (1996: 329) that justice is the "contested effect of power within a particular place at a given time". Access to decision-making is spatially and socially differentiated. For example, wealthier communities may be better equipped than poorer

communities to challenge an authority's planning decision as they have the resources to commission independent scientific reports (Haughton, Bankoff & Coulthard 2015).

Flood risk management in New Zealand is blind to environmental injustice as social dimensions of vulnerability are not considered by local authorities in their assessments (Lawrence & Quade 2011). The notion of adaptive capacity building demands an understanding of vulnerability to flood risk, so that policies can be directed to improve situations rather than create further injustice by ignoring difference and pre-existing inequalities.

The relationship between flood risk management and environmental justice needs to be assessed at every stage of the planning process and in a way that is adjusted to the community's specific conditions and the environmental complexity of the issues. It would be advantageous for planners to consider who has the procedural right to participate in an inclusive, transparent and deliberative process, how the process of flood risk management may be just given the local context, and how it could be managed across time and space.

The second objective, **to outline and evaluate the planning frameworks which operationalise flooding and environmental justice in New Zealand**, has been addressed in Chapters 2, 3 and 5.

The forward-looking nature of the RMA, which requires decision-makers to consider who the future generations will be and what their needs will be, involves decision-makers in a form of risk management (Warnock & Baker-Galloway 2015). The inclusion of the management of significant risks from natural hazards as a Section 6 'matter of national importance' to be considered in decision-making, within the Resource Legislation Amendment Act 2017, introduces the concept of risk into the RMA, and instructs planners to consider both the consequences and the likelihood of a natural hazard event when making a resource management decision.

The intent of a devolved framework for flood risk management is that decision-making occurs at the level at which people are affected by the potential risk



(Ministry for the Environment 2008). Participation in decision-making is provided for in statute. In support of procedural rights and in recognising the importance of culture in New Zealand society, the RMA gives responsibilities for resource and environmental management to territorial authorities and makes provision for Māori input into the decision-making. There is, however, a strong body of contemporary evidence, such as Ryks, Wyeth, Baldwin, *et al.* (2010), which suggest that existing provisions for Māori representation and engagement are not being used effectively. Much depends on the willingness and the resource capabilities of local authorities to fulfil their obligations with Māori and for Māori to be fully supported, resourced and empowered to effectively participate in RMA processes. Evidence shows that the issue of power in decision-making is crucial for the delivery of environmental justice. For example, how flood risk information is constructed and shared reflects a power struggle between local government, iwi and communities and questions the true extent of local empowerment in decision-making.

Definitions of sustainability that integrate social equity concerns are excluded from the regulatory framework and therefore environmental justice policy debates are marginalised. Nonetheless, the LGA provides for “democratic and effective local government that recognises the diversity of New Zealand communities” (Section 3). The recognition of difference is central for asserting a claim for environmental justice. The CDEM planning framework places a strong emphasis on local initiatives for risk reduction. The legislative framework enables local authorities to use a variety of tools and approaches to manage flood risk in their local context. The use of multi-criteria analysis could, for example, be employed to identify vulnerable communities for flood risk management. This demonstrates that whilst justice has low visibility in the statutes, in that it is referred to by proxy rather than directly, the principles of environmental justice are reflected in legislation.

By affirming a clean and healthy environment as a fundamental guarantee, environmental human rights are a mechanism for securing environmental justice. New Zealand has to date failed to recognise and provide for the right to a healthy environment in its statutes, both in respect of the New Zealand Bill of Rights Act and the planning legislative framework. In this extent, it is lagging behind other

countries. When considered together New Zealand's statutes offer some avenues that can be utilised to address environmental injustices, however, as this research has shown this creates limitations to delivering environmental justice for communities living at risk of flooding. There is no overarching legislation encompassing the values of environmental justice that a party raising a grievance could turn to.

The third objective, **to interrogate the environmental justice implications for people at risk from flooding in New Zealand**, has been addressed in Chapters 5, 6, 7 and 8.

### ***Procedural Justice***

The planning processes of flood risk management were assessed against four criteria for procedural justice:

- The availability and access to environmental information

Evidence revealed that in areas where flood risk had not been modelled by local government, communities remain unaware and reliant on past experience to predict their likelihood of future exposure to flood risk and its consequences. The process of how areas are prioritised for flood mitigation works needs to be open and transparent to all stakeholders. For communities to maximise their involvement they need to be informed and understand the different roles and responsibilities of regional and territorial authorities, and their own responsibilities as community members. To improve risk awareness, residual risk must be accounted for, and uncertainty specified, in district plans. A lack of monitoring of the efficiency and effectiveness of flood risk reduction policies and objectives limits local government's ability to determine whether processes are just and have led to just outcomes in flood risk management.

- Inclusion in policy-making and decision-making processes

Evidence found that interests of all affected social groups need to be properly represented and sought out by local government, through inclusive methods of communication and community engagement. The extent communities have effective influence in decision-making questions the degree of local empowerment and, thereby, a just participation process. Variation in social inequalities and differing vulnerabilities of people living in areas at risk of

flooding is excluded from the decision-making process. Flood risk management policy would benefit from recognising pre-existing social differences and unevenness within and between communities.

- Inclusion in community-based participatory research

The findings call for planners to collaborate with iwi and local communities, in the creation of knowledge about flood risk and vulnerability, in an effective and equal partnership manner. To avoid legal contestation, community expectations of the state's capacity and ability to deliver flood risk management needs to be openly discussed and managed.

- Access to legal processes for challenging decision-making.

The findings highlighted the difficulty marginalised and disadvantaged groups face in pursuing legal action because of their limited financial and resource abilities.

Overall, these findings suggest that if the aim is to achieve a just approach to flood risk management it is important to have interests fairly represented with effective power sharing, rather than to value participation in its own right (Fainstein 2010: 175).

### ***Distributive Justice***

In considering the distributive justice of flood risk management, three issues need to be identified and examined:

- The environmental burden or benefit that is being distributed

The natural distribution of flooding is not equitable, nor is the distribution of flood risk management to reduce the impact of vulnerability to future risk. Evidence suggests that a community's ability and willingness to pay influences the scope of flood mitigation works that are undertaken, which may create distributive injustices.

- The recipients of the environmental injustice

Planners would benefit from understanding a neighbourhood's context to assess vulnerability to flood risk. Local government, in identifying and defining 'at risk' populations, should include local people, their views and perspectives to develop

strategies, draft contextual policies, target resources and direct flood warning campaigns.

- The principle of distribution

Flood risk areas are prioritised by authorities on the basis of need in terms of the severity of flood risk. Decisions on flood risk management are, however, influenced by political and community pressure, with finance being the most critical aspect. This study exposed two aspects of the financial implications of flood risk management that have justice implications. Firstly, the use of cost-benefit analysis to assess flood impacts and evaluate alternative options to reduce risk. This analysis is, however, unable to consider social costs and benefits that are not measurable in monetary terms. The use of wider multi-criteria analysis to identify communities where benefits offer the greatest gain to society would incorporate justice principles. Secondly, the use of direct benefit rating to disperse the costs of mitigation works between community members increases the existing social inequalities within a community and does not take into account individual circumstances. Wider community payments were the preferred option in the case study communities.

Attention on vulnerability reduction and self-help adaptations could bring benefit to all people at risk of flooding and avoid the injustice of structural solutions that only benefit a specific neighbourhood.

### ***Justice as Recognition***

The case study of Graham's Creek in Tairua highlighted four key issues for justice as recognition which local government needs to incorporate when creating opportunities for stakeholder participation in flood risk management. Firstly, all local and indigenous knowledge that is created must be valued and woven into the flood risk management process and given due weight by the decision-takers. Secondly, the expectation of local residents needs to be managed early on in the process to minimise feelings of unfairness and injustice. Thirdly, local government needs to ensure that, in generating opportunities for community participation, all social and cultural groups participate in the analysis of the flood risk problem and work together to develop solutions that are broadly acceptable to the whole community. Fourthly, the devaluing of social groups may have a spatial

expression. Recognition of identities and cultural practices is crucial to gaining community self-determination of flood risk management and for justice as recognition.

### *A Capabilities Approach to Justice*

Evidence revealed that the capability to manage and mitigate flood risk at an individual level depends on four issues. Firstly, the development of personal risk awareness influences behavioural response. In raising risk awareness, local government needs to tailor its communication as the ability of the local population to interpret the information varies. Secondly, the perceived responsibilities for flood risk management affects the level of action individuals take. Thirdly, individual capacity to act may constrain individual response. Fourthly, individual response may be influenced by the degree of trust in institutional responses. These four issues indicate that policy needs to focus on the functioning's people in 'at risk' communities actually achieve rather than the opportunities they have to potentially achieve.

In embracing a capabilities approach, institutions and flood risk policies would shift from concentrating on vulnerability of place to protecting and expanding people's capabilities to manage and reduce their individual flood risk and minimise the impacts from a flood event. It promotes the design of strategic policies aimed at reinforcing people's capability to manage flood risk. Furthermore, it widens the scope of examination from a focus on the people living at risk of flooding to include the capabilities of practitioners and all stakeholders who are involved in the decision-making process. By enhancing the capabilities of the relatively disadvantaged, the distributive outcomes of policies would make justice more explicit than current practice.

This study has shown that justice implications of flood risk management need to be assessed at each stage of the planning process. An inclusive and transparent strategy of deliberation across levels of government and all of society is crucial for an environmentally just approach to flood risk management in New Zealand.

The fourth objective, **to propose how planning for flood risk management within New Zealand could improve the consideration of environmental justice**, is as follows:

### **9.3 Recommendations**

As the recommendations encompass the interlinking concepts of environmental justice, they are dealt with under sub-headings of scale and who is involved.

#### ***Strategic***

Adopting a definition of sustainability in legislation that integrates social equity concerns would be favourable to environmental justice policy debates. The challenge for policy-makers is to promote an inclusive agenda. Without national guidance on the balancing of ‘well-beings’, local government can prioritise economic considerations in the distribution of flood risk management to the detriment of social and cultural factors. If justice were recognised as an important component of ‘well-being’ in the RMA and CDEM, decision-makers would be required to consider what the right thing is to do in a specific context.

Improved national guidance, for instance, in defining levels of acceptable flood risk and minimum standards for specified land-uses, will strengthen local government’s ability to negotiate and engage with citizens on strategies that assist their living with risk responsibilities.

#### ***Local government level***

To enable an authority to assess and improve its risk-based approach, risk reduction objectives need to be more effectively measured, monitored and reviewed to assess if improvements need to be made. Such a reflexive approach will enable consideration of how fair and just the processes and the outcomes in the management of flood risk have been. The distributive impact of flood risk policies, for instance, requires deliberation by planning and emergency management practitioners so that policies recognise difference and accommodate the specific needs and vulnerabilities of people living at risk of flooding. For a

just process, iwi and community members ought to be involved in the monitoring and evaluation processes in partnership with local government.

In promoting environmental justice, flood risk management decisions need to recognise, and take account of, the social consequences of flooding and differential impacts on social groups in terms of exposure and susceptibility. Practitioners need to consider why people already exposed to other forms of disadvantage are more vulnerable to the impacts of flood risk. For a procedurally just approach, variation in social inequality, in terms of differing vulnerabilities of people at risk from flooding, should be included in the decision-making process. For instance, decision-makers should use maps of vulnerability alongside maps of flood hazard when prioritising areas for flood risk management.

To allow for differing impacts of policies on vulnerable groups and to advance building increasing community resilience, vulnerability assessments should be undertaken and fed into cost-benefit analyses. In the current approach, the indirect and social costs of floods are underestimated and are not properly weighted in cost-benefit analyses. An alternative to cost-benefit analysis would be to evaluate measures on their potential to increase community resilience through improving the capabilities of individuals and communities to manage their flood risk. The use of multi-criteria analysis would be beneficial in prioritising flood risk management and in directing state assisted self-help adaptation strategies to vulnerable community members.

The process of flood risk assessment and modelling with its reliance on technical tools is blind to environmental justice concerns. In the decision-making process for flood management strategies, local and historical knowledge and *mātauranga* Māori should be considered alongside a flood model, so that communities have input and access to the decision-making process. In ensuring meaningful participation and broadening perspectives, it would be beneficial for planners to recognise and harness local knowledge by listening and responding to local residents and iwi as valuable contributors.

Central and local government need to be frank about the level of protection that the state is able to provide to prevent unrealistic community expectations of

national assistance and on-going protection from flooding based on past experience. Advancing a regional approach is beneficial to improving integration within local government. Early collaborative discussion between all stakeholders about managed retreat, for example, is recommended. Similarly, the scope and limitations of public involvement in the decision-making process needs to be made explicit to the community from the outset of a project, thereby managing expectations and feelings of fairness, which generate injustice claims.

In seeking equality in the capability to manage flood risk, policy needs to focus on the functioning's people achieve rather than the opportunities they have. Limited capacity to act, such as tenure of property and financial resources, may constrain individual response to a flood risk. To ensure universal adoption of household flood mitigation measures, and in line with distributive justice, local government assistance should be directed to disadvantaged socio-economic groups and communities. Local government needs to advise residents in 'at risk' communities of the effectiveness of household flood mitigation measures and guidance on how to implement them and their estimated cost (Bubeck, Botzen & Aerts 2012).

### ***Stakeholder and iwi involvement***

A collaborative style of risk management, in the form of participatory decision-making, requires early dialogue between all stakeholders. In so doing, it will safeguard a just process and help to avoid future legal challenges from arising. Stakeholder engagement needs the allocation of adequate local government resources, including the training and development of excellent communication and people skills to enable council staff to act as effective facilitators in the decision-making process. Local government must consider how and with what resources it will support and empower Māori to effectively participate in RMA processes. For example, considering the capabilities of staff to gather and value Māori knowledge is the first step.

A participatory model should centre on discuss – design – implementation and not follow predetermined strategies or insert consultation exercises as an addition. The objective of a collaborative approach should be to obtain a negotiated outcome based on consensus building and mediation from the outset. A working



party arrangement, comprising of representatives from all stakeholders involved in flood risk in a specified locality, provides a forum for such a process to be reconciled. A working party promotes the concept of a community voice but inevitably may marginalise the views of some. Careful consideration needs to be given to the selection of contributors to the working party, in terms of whether the selection should be established through a democratic process or based on the judgement of a council organiser. Who occupies, or should occupy, spaces of representation is an important issue for planners to consider for procedural justice and recognition, as dissenting voices are often side-lined thereby marginalising the concerns of some community members. Planning processes must assist and actively seek out cross-community participation and minimise exclusions, such as the concerns of tenants. Practitioners need to apply social and cultural considerations to both methods of communication and engagement.

### ***Community-individual level***

Providing access to environmental information and raising risk awareness for people living in 'at risk' places is essential for just procedures. In spite of extensive information sharing by local government, unequal power relations in the decision-making process exist as communities have ineffective influence in decision-making as they do not have access to the technical knowledge sets and the background data on which decisions and plan objectives have been based. To ensure an informed public makes decisions based on information, accessible documents, such as flood hazard maps in a district plan, need to identify residual risk and specify how uncertainty has been dealt with. Flood hazard maps alone are not sufficient to inform the public, and so should be accompanied by explanatory notes. Furthermore, publicly accessible flood hazard information needs to be regularly up-dated by regional and territorial authorities and should not wait for a plan review. Flood risk information should be included in a LIM thus ensuring that LIM details accord with district plan provisions.

To guarantee procedural justice, affected communities must be allowed and enabled to participate in the identification of vulnerable spaces and in rationalising which land-uses warrant the greatest protection from future flood risk.

To avoid feelings of unfairness and concern of regional disparities in the distribution of flood risk management, decision-making processes and resultant outcomes ought to be transparent and accountable to ratepayers who pay for flood risk management and for people at risk of flooding. This includes explaining how areas are prioritised for flood mitigation and the criteria behind the selective modelling of flood risk areas.

Raising risk awareness and understanding risk perceptions to ensure positive community and council collaboration needs frequent communication through a variety of media that is tailored to specific groups, and is responsive to the local context and variations in vulnerabilities across communities. Two-way communication enables the public to actively engage with local government. To maximise their involvement in the flood risk management process and their capabilities, local communities need to be informed about and understand the different roles and responsibilities of regional and territorial authorities in managing flood risk.

If decisions are to be made at a local level and if they are to endorse a capabilities approach to justice, an appropriate resolution needs to reflect the local context even if this is contrary to the regional approach. For example, a community wide payment for flood mitigation works may be preferred to targeted charges as differential rate payments cause unease in communities as to who pays and who benefits. Spreading the burden beyond direct beneficiaries prevents an unreasonable burden on ratepayers, particularly those on lower incomes, and recognises the benefit of works received by the wider community.

#### **9.4 Limitations of this research and opportunities for future research**

The process of why and how certain groups of people are disproportionately represented as ‘living with risk’, such as the reasons they reside in an area prone to flooding, are important considerations and ideally need to be examined across space and time. This thesis, however, did not examine the origins of the risk in why or by what course of historical events specific socio-economic groups have come to be disproportionately living in areas of high flood risk. Such an approach

would have required a longitudinal study that was beyond the scope of this analysis.

In its consideration of the recipients of the environmental injustice and to examine the pattern of distribution of exposure to flood risk and its relationship to socioeconomic deprivation, this study used the NZDep2013 score, household median income and age. Other individual indicators of vulnerability could provide greater detail, such as ethnicity and disability, particularly if the findings were compared to other settlements within New Zealand to present a vulnerability scenario over space. The relatively small size of the three case study communities did not provide contrasts in demographic characteristics for further analysis.

Further study would be beneficial to analyse variations in how the impacts of flood risk are experienced across the case study communities, in terms of how different demographics, socio-economic and cultural groups are more or less vulnerable to flood risk. Such work demonstrates the linkage between planning and Civil Defence in building community resilience.

Scope exists for future work on the justice implications of utilising cost-benefit analysis as a principle of distribution of flood risk management strategies in New Zealand. As indicated in Chapter 6, research needs to be undertaken to ascertain how vulnerability assessments should be completed and fed into cost-benefit analyses of flood risk management strategies. An alternative to cost-benefit analysis to determine the investment of public resources would be to evaluate flood risk management measures on their potential to increase community resilience and the coping capacity of individuals. This demands further research on community resilience and coping capacity to flood risk. For example, vulnerability assessment should be undertaken after policy implementation and following a flood event to evaluate the policy's effectiveness at reducing community level vulnerability to flood risk.

As a recent permanent resident of New Zealand, the researcher has limited personal knowledge of Māori *mātauranga*, and in its most basic form in the words used during discussions. This may have contributed to difficulties experienced in arranging and conducting interviews and in understanding the complexity

involved in Māori self-determination in relation to environmental management. Environmental justice provides a platform through which indigenous knowledge is respected and valued. It offers indigenous peoples a framework through which to articulate their concerns and to demand a just process in environmental decision-making. The scope for further research in this area for, and on behalf of, Māori is extensive. This is exemplified in recent work by Rixecker & Tipene-Matua (2012) on genetic engineering and bioprospecting in New Zealand.

## **9.5 Concluding statement**

In building upon international scholarship on flood risk management and environmental justice, this study has drawn links between the two previously disparate bodies of work in the New Zealand context. Planning has a key role to play in reducing flood risk and in building communities that are both resilient and sustainable to future flood events. This research has shown how an environmental justice framework provides opportunity for all stakeholders, notably individuals, community groups and iwi, to engage with local government in the decision-making process for managing flood risk, and to demand a just process in planning policy and practice. By deliberating on the participatory process of managing flood risk, this study has demonstrated how justice as recognition and capabilities extends beyond procedural and distributive justice to offer useful parameters to guide the process. The legislative environment, which provides for risk reduction through the planning system, needs to deal directly with justice concepts rather than incidentally.



## Bibliography

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Adam, B., Beck, U. and Van Loon, J. (2000) Repositioning Risk: 1-33. *The Risk Society and Beyond: Critical Issues for Social Theory*. London, Sage.

Adams, J. (1995) *Risk*. Abingdon, Routledge.

Adger, W.N. (2006) Vulnerability. *Global Environmental Change*. 16268–281.

Adger, W.N., Quinn, T., Lorenzoni, I., Murphy, C., et al. (2012) Changing social contracts in climate-change adaptation. *Nature Climate Change*. [Online] 3 (4), 330–333. Available at: <http://dx.doi.org/10.1038/nclimate1751> (Accessed: 27 March 2015).

Agrawal, A. and Gibson, C. (2001) *Communities and the Environment: ethnicity, gender and the state in community-based conservation*. New Brunswick, N. J., Rutgers University Press.

Agyeman, J., Bullard, R.D. and Evans, B. (2003) *Just sustainabilities: development in an unequal work*. London, Earthscan.

Agyeman, J., Schlosberg, D., Craven, L. and Matthews, C. (2016) Trends and Directions in Environmental Justice : From Inequity to Everyday Life , Community , and Just Sustainabilities. *The Annual Review of Environment and Resources*. [Online] 411–20. Available at: doi:10.1146/annurev-environ-110615-090052.

Arnstein, S.R. (1969) A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*. [Online] 35 (4), 216–224. Available at: doi:10.1080/01944366908977225.

Ashley, R.M., Blanskby, J., Newman, R., Gersonius, B., et al. (2012) Learning and Action Alliances to build capacity for flood resilience. *Journal of Flood Risk Management*. 5 (1), 14–22.

Atkinson, J., Salmond, C. and Crampton, P. (2014) *NZDep2013 Index of Deprivation*. Department of Public Health, University of Otago.

Ballet, J., Koffi, J.M. and Pelenc, J. (2013) Environment, justice and the capability approach. *Ecological Economics*. [Online] 8528–34. Available at: doi:10.1016/j.ecolecon.2012.10.010.

Baxter, J. (2010) Case studies in qualitative research. In: I. Hay (ed.). *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press. pp. 81–97.

Beck, U. (1995) *Ecological Politics in an Age of Risk*. Cambridge, Polity Press.

Beck, U. (1992) *Risk society: Towards a New Modernity*. London, Sage.

Beck, U. (2000) *What is globalization?* Cambridge, Polity Press.

Beck, U. and Kropp, C. (2007) Environmental risks and public perceptions. In: J. et al Pretty (ed.). *The SAGE Handbook of Environment and Society*. London, SAGE. pp. 601–611.

Bell, D. (2004) Environmental justice and Rawls' difference principle. *Environmental Ethics*. 26 (7), 287–306.

Bell, J. and Morrison, T. (2014) A Comparative Analysis of the Transformation of Governance Systems: Land-Use Planning for Flood Risk. *Journal of Environmental Policy & Planning*. [Online] 17 (4), 516–534. Available at: doi:10.1080/1523908X.2014.986567.

Béné, C., Wood, R.G., Newsham, A. and Davies, M. (2012) Resilience: new utopia or new tyranny? Reflection about the potentials and limits of the concept of resilience in relation to vulnerability reduction programmes. *IDS Working Paper*. [Online]. 2012 (405). Available at: doi:10.1111/j.2040-0209.2012.00405.x.

Berke, P. and Godschalk, D. (2009) Searching for the Good Plan: A Meta-Analysis of Plan Quality Studies. *Journal of Planning Literature*. [Online] 23 (3), 227–240. Available at: doi:10.1177/0885412208327014.

Bickerstaff, K. and Agyeman, J. (2009) Assembling Justice Spaces: The Scalar Politics of Environmental Justice in North-east England. *Antipode*. [Online] 41 (4), 781–806. Available at: doi:10.1111/j.1467-8330.2009.00697.x.

Bickerstaff, K., Bulkeley, H. and Painter, J. (2009) Justice, Nature and the City. *International Journal of Urban and Regional Research*. [Online] 33 (3), 591–600. Available at: doi:10.1111/j.1468-2427.2009.00858.x.

Bickerstaff, K. and Walker, G. (2005) Shared visions, unholy alliances: Power, governance and deliberative processes in local transport planning. *Urban Studies*. [Online] 42 (12), 2123–2144. Available at: doi:10.1080/00420980500332098.

Birkholz, S., Muro, M., Jeffrey, P. and Smith, H.M. (2014) Rethinking the relationship between flood risk perception and flood management. *Science of the Total Environment*. [Online] 47812–20. Available at: doi:10.1016/j.scitotenv.2014.01.061.

Bubeck, P., Botzen, W.J.W. and Aerts, J.C.J.H. (2012) A review of risk perceptions and other factors that influence flood mitigation behavior. *Risk Analysis*. [Online] 32 (9), 1481–1495. Available at: doi:10.1111/j.1539-6924.2011.01783.x.

Bulkeley, H., Edwards, G.A.S. and Fuller, S. (2014) Contesting climate justice in the city: Examining politics and practice in urban climate change experiments.

*Global Environmental Change*. [Online] 25 (1), 31–40. Available at: doi:10.1016/j.gloenvcha.2014.01.009.

Bullard, R.D. and Wright, B. (2010) *Race, Place, and Environmental Justice After Hurricane Katrina: Struggles to Reclaim, Rebuild, and Revitalize New Orleans and the Gulf Coast*. Boulder, CO, Westview Press.

Burby, R.J. (2006) Hurricane Katrina and the Paradoxes of Government Disaster Policy: Bringing About Wise Governmental Decisions for Hazardous Areas. *The Annals of the American Academy of Political and Social Science*. [Online] 604 (1), 171–191. Available at: doi:10.1177/0002716205284676.

Burningham, K., Fielding, J. and Thrush, D. (2008) ‘It’ll never happen to me’: understanding public awareness of local flood risk. *Disasters*. 32 (2), 216–238.

Burns, W.J. and Slovic, P. (2012) Risk Perception and Behaviors: Anticipating and Responding to Crises. *Risk Analysis*. [Online] 32 (4), 579–582. Available at: doi:10.1111/j.1539-6924.2012.01791.x.

Butler, C. and Pidgeon, N. (2011) From ‘flood defence’ to ‘flood risk management’: exploring governance, responsibility, and blame. *Environment and Planning C: Government and Policy*. [Online] 29 (3), 533–547. Available at: doi:10.1068/c09181j.

Byrne, J. (2010) ‘Environmental Justice’. In: B. Warf (ed.). *Encyclopedia of Geography*. Thousand Oaks, CA, Sage Reference Online. pp. 960–966.

Byrne, J. and MacCallum, D. (2013) Bordering on neglect: ‘environmental justice’ in Australian planning. *Australian Planner*. [Online] 50 (2), 164–173. Available at: doi:10.1080/07293682.2013.776984.

Campbell, H. (2006) Just Planning: The Art of Situated Ethical Judgment. *Journal of Planning Education and Research*. [Online] 26 (1), 92–106. Available at: doi:10.1177/0739456X06288090.

Campbell, H. (2012) ‘Planning ethics’ and rediscovering the idea of planning. *Planning Theory*. [Online] 11 (4), 379–399. Available at: doi:10.1177/1473095212442159.

Cannon, T. (2008) Vulnerability, ‘innocent’ disasters and the imperative of cultural understanding. *Disaster Prevention and Management*. [Online] 17 (3), 350–357. Available at: doi:10.1108/09653560810887275.

Carley, J.T., Komar, P.D., Kench, P.S. and Davies, R.B. (2014) *Coastal Erosion Hazard Assessment for the Kāpiti Coast : Review of the Science and Assessments Undertaken for the Proposed Kāpiti Coast District Plan 2012*. (June). Prepared for Kapiti Coast District Council.

Chambers, R. (1989) *Vulnerability: How the Poor Cope*. Brighton, IDS.



Charte de l'environnement (1958) *Article 2*. [Online] [www.conseil-constitutionnel.fr](http://www.conseil-constitutionnel.fr)  
Accessed 10 March 2018.

Coaffee, J. (2013) Rescaling and responsabilising the politics of urban resilience: From national security to local place-making. *Politics*. [Online] 33 (4), 240–252. Available at: doi:10.1111/1467-9256.12011.

Coates, N. (2009) Joint-management agreements in New Zealand: Simply empty promises? *Journal of South Pacific Law*. 13 (1), 32–39.

Coombes, B.L. (2013) Māori and environmental justice: the case of 'Lake' Otarā. In: E Peters and C. Andersen (eds.). *Indigenous in the City: Contemporary Identities and Cultural Innovation*. Vancouver, UBC Press. pp. 334–353.

Cope, M. (2010) Coding qualitative data. In: I. Hay (ed.). *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press. pp. 281–294.

Crichton, D. (1999) The Risk Triangle. In: J. Ingleton (ed.). *Natural Disaster Management*. London, Tudor Rose. pp. 102–103.

Crichton, D. and Salt, J.E. (2001) *The Implications of Climate Change for the Insurance Industry: An Update and Outlook to 2020*. Watford, Building Research Establishment.

Cutter, S.L. (2006) *Hazards, Vulnerability and Environmental Justice*. London, Earthscan.

Davidoff, P. (1965) Advocacy and Pluralism in Planning. *Journal, American Planning Association*. 31 (4), 331–338.

Dean, M. (1999) *Governmentality: Power and Rule in Modern Society*. London, Sage Publications.

Debbané, A. and Keil, R. (2004) Multiple disconnections: environmental justice and Urban water in Canada and South Africa. *Space and Polity*. [Online] 8 (2), 209–225. Available at: doi:10.1080/1356257042000273968.

Delemos, J.L. (2006) Community-Based Participatory Research: Changing Scientific Practice from Research on Communities to Research with and for Communities. *Local Environment*. [Online] 11 (3), 329–338. Available at: doi:10.1080/13549830600558838.

Demeritt, D. and Nobert, S. (2014) Models of best practice in flood risk communication and management. *Environmental Hazards*. [Online] (February 2015), 37–41. Available at: doi:10.1080/17477891.2014.924897.

Denscombe, M. (1998) *The Good Research Guide for Small-Scale Social*

*Research Projects*. Buckingham, Open University Press.

Dingwall, R. (2000) Risk society: the cult of theory and the millennium. In: I. Manning, N; Shaw (ed.). *New Risks, New Welfare: Signposts for Social Policy*. Wiley. pp. 137–154.

Donaldson, A., Lane, S., Ward, N. and Whatmore, S. (2013) Overflowing with issues: Following the political trajectories of flooding. *Environment and Planning C: Government and Policy*. [Online] 31 (4), 603–618. Available at: doi:10.1068/c11230.

Doorn, N. (2015) The blind spot in risk ethics: Managing natural hazards. *Risk Analysis*. [Online] 35 (3), 354–360. Available at: doi:10.1111/risa.12293.

Douglas, M. (1992) *Risk and Blame: Essays in Cultural Theory*. London, Routledge.

Dowling, R. (2010) Power, subjectivity and ethics in qualitative research. In: I. Hay (ed.). *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press. pp. 26–39.

Dunn, K. (2010) Interviewing. In: *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press. pp. 101–137.

Durie, M. (1998) *Te mana, te kāwanatanga: the politics of Māori self-determination*. Auckland, Oxford University Press.

Edwards, G.A.S., Reid, L. and Hunter, C. (2016) Environmental justice , capabilities , and the theorization of well-being. *Progress in Human Geography*. [Online] 40 (6), 754–769. Available at: doi:10.1177/0309132515620850.

Environment Foundation (2016) *New Zealand Environment Guide*. [Online]. 2016. Available at: <http://www.environmentguide.org.nz> (Accessed: 1 July 2017).

Environment Waikato and Thames Coromandel District Council (2010) *The Peninsula Project: Coromandel flood protection update*. (July). Hamilton, Environment Waikato Regional Council.

Evans, M., Marsh, D. and Stoker, G. (2013) Understanding localism. *Policy Studies*. [Online] 34 (4), 401–407. Available at: doi:10.1080/01442872.2013.822699.

Faber, D. (2005) Building a transnational environmental justice movement: obstacles and opportunities in the age of globalization. In: J. Bandy and J. Smith (eds.). *Coalitions Across Borders: Transnational Protest and the Neoliberal Order*. Rowman & Littlefield. pp. 43–68.

Fainstein, S.S. (2014) The just city. *International Journal of Urban Sciences*.

[Online] 18 (1), 1–18. Available at: doi:10.1080/12265934.2013.834643.

Fainstein, S.S. (2010) *The Just City*. New York, Cornell University Press.

Fainstein, S.S. and Campbell, S. (2012) *Readings in planning theory*. 3rd edition. Oxford, Wiley-Blackwell.

Few, R., Brown, K. and Tompkins, E.L. (2007) Public participation and climate change adaptation: Avoiding the illusion of inclusion. *Climate Policy*. [Online] 746–59. Available at: doi:10.1080/14693062.2007.9685637.

Fielding, J. (2007) Environmental injustice or just the lie of the land: An investigation of the socio-economic class of those at risk from flooding in England and Wales. *Sociological Research Online*. [Online] 12 (4). Available at: doi:10.5153/sro.1570.

Fielding, J. and Burningham, K. (2005) Environmental inequality and flood hazard. *Local Environment*. [Online] 10 (4), 379–395. Available at: doi:10.1080/13549830500160875.

Fielding, J.L. (2012) Inequalities in exposure and awareness of flood risk in England and Wales. *Disasters*. [Online] 36 (3), 477–494. Available at: doi:10.1111/j.1467-7717.2011.01270.x.

Flyvbjerg, B. (2011) Case Study. In: N. K. Denzin and Y. S. Lincoln (eds.). *The Sage Handbook of Qualitative Research*. 4th ed. [Online]. Thousand Oaks, CA, Sage. pp. 301–316. Available at: doi:10.1016/B978-1-85617-502-9.00025-6.

Flyvbjerg, B. (2006) Five misunderstandings about case-study research. *Qualitative Inquiry*. [Online] 12 (2), 219–245. Available at: doi:10.1177/1077800405284363.

Foucault, M. (1979) *Discipline and Punish: The Birth of the Prison*. trans. She. New York, Random House.

Fraser, N. (1997) *Justice Interruptus: Critical Reflections on the Postsocialist Condition*. New York, Routledge.

Fraser, N. (2001) Recognition without Ethics? *Theory, Culture & Society*. [Online] 18 (2–3), 21–42. Available at: doi:10.1177/02632760122051760.

Fraser, N. (2000) Rethinking Recognition. *New Left Review*. [Online] 31–8.

Garland, D. (1996) *The Limits of the Sovereign State: Strategies of Crime Control in Contemporary Society*. 36 (4), 445–471.

Geaves, L.H. and Penning-Rowsell, E.C. (2016) Flood Risk Management as a public or a private good, and the implications for stakeholder engagement.

*Environmental Science & Policy*. [Online] 55 (Part 2), 281–291. Available at: doi:<http://dx.doi.org/10.1016/j.envsci.2015.06.004>.

Getches, D. and Pellow, D. (2002) Beyond ‘traditional’ environmental justice. In: Kathryn M Mutz, Gary C Bryner, and Douglas S Kenney (eds.). *Justice and Natural Resources*. 2nd editio. Washington D.C., Island Press. pp. 3–30.

Giddens, A. (1991) *Modernity and self-identity*. Cambridge, Polity Press.

Giddens, A. (1999) Risk and Responsibility. *The Modern Law Review*. 62 (1), 1–10.

Glavovic, B., Saunders, W.S.A. and Becker, J.S. (2010a) Realising the potential of land-use planning to reduce hazard risks in New Zealand. *Australasian Journal of Disaster Trauma Studies*. [Online] 2010 (1). Available at: <http://trauma.massey.ac.nz/issues/2010-1/glavovic.htm>.

Glavovic, B.C., Saunders, W.S.A. and Becker, J.S. (2010b) Land-use planning for natural hazards in New Zealand: the setting, barriers, ‘burning issues’ and priority actions. *Natural Hazards*. [Online] 54 (3), 679–706. Available at: doi:10.1007/s11069-009-9494-9.

Greensill, A.N. (2010) *Inside the Resource Management Act - A Tainui Case Study*. Dissertation for Master in Social Sciences. University of Waikato.

Grineski, S. (2006) Local Struggles for Environmental Justice: Activating Knowledge for Change. *Journal of Poverty*. [Online] 10 (3), 25–49. Available at: doi:10.1300/J134v10n03.

Grothmann, T. and Reusswig, F. (2006) People at risk of flooding: Why some residents take precautionary action while others do not. *Natural Hazards*. [Online] 38101–120. Available at: doi:10.1007/s11069-005-8604-6.

Habermas, J. (1984) *The Theory of Communicative Action Volume 1: the Rationalisation of Society*. Cambridge, Polity Press.

Hales, S., Black, W., Skelly, C., Salmond, C., et al. (2003) Social deprivation and the public health risks of community drinking water supplies in New Zealand. *Journal of Epidemiology & Community Health*. [Online] 57 (8), 581–583. Available at: doi:10.1136/jech.57.8.581.

Harvatt, J., Petts, J. and Chilvers, J. (2011) Understanding householder responses to natural hazards: flooding and sea-level rise comparisons. *Journal of Risk Research*. [Online] 14 (1), 63–83. Available at: doi:10.1080/13669877.2010.503935.

Harvey, D. (1996) *Justice, Nature and the Geography of Difference*. Oxford, Wiley-Blackwell.

- Harvey, D. (1973) *Social Justice and the City*. London, Edward Arnold.
- Haughton, G. (1999) Environmental Justice and the Sustainable City. *Journal of Planning Education and Research*. [Online] 18 (3), 233–243. Available at: doi:10.1177/0739456X9901800305.
- Haughton, G., Bankoff, G. and Coulthard, T. (2015) In search of ‘lost’ knowledge and outsourced expertise in flood risk management. *Transactions of the Institute of British Geographers*. [Online] 40 (1). Available at: doi:10.1111/tran.12082.
- Hauraki Māori Trust (2004) *Whaia te Mahere Taiao a Hauraki - Hauraki Iwi Environmental Plan*. New Zealand, Hauraki Māori Trust.
- Hay, I. (2010) *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press.
- Healey, P. (2003) Collaborative Planning in Perspective. *Planning Theory*. [Online] 2 (2), 101–123. Available at: doi:10.1177/14730952030022002.
- Healey, P. (2011) The universal and the contingent: Some reflections on the transnational flow of planning ideas and practices. *Planning Theory*. [Online] 11 (2), 188–207. Available at: doi:10.1177/1473095211419333.
- Healey, P. (2007) *Urban Complexity and Spatial Strategies*. London, Routledge.
- Holifield, R. (2012) Environmental Justice as Recognition and Participation in Risk Assessment: Negotiating and Translating Health Risk at a Superfund Site in Indian Country. *Annals of the Association of American Geographers*. [Online] 102 (3), 591–613. Available at: doi:10.1080/00045608.2011.641892.
- Holifield, R., Porter, M. and Walker, G. (2009) Introduction Spaces of Environmental Justice: Frameworks for Critical Engagement. *Antipode*. [Online] 41 (4), 591–612. Available at: doi:10.1111/j.1467-8330.2009.00690.x.
- Holland, B. (2012) Environment as meta-capability. In: Allen Thompson and Jeremy Bendik-Keymer (eds.). *Ethical Adaptation to Climate Change*. Cambridge M. A., MIT Press. pp. 145–164.
- Holling, C.S. (1973) Resilience and stability of ecological systems. *Annual Review of Ecology and Systematics*. 41–23.
- Honneth, A. (2001) Recognition or Redistribution? *Theory, Culture & Society*. [Online] 18 (2–3), 43–55. Available at: doi:10.1177/02632760122051779.
- Hudson, B. (2003) *Justice in the risk society*. London, Sage Publications.
- Independent Māori Statutory Board (2017) *Independent Māori Statutory Board*.

[Online]. 2017. Available at: <http://www.imsb.maori.nz> (Accessed: 1 March 2017).

Intergovernmental Panel on Climate Change (2007) *Climate Change 2007: Synthesis Report. Contribution of Groups I, II & III to the Fourth Assessment Report*. Geneva, Intergovernmental Panel on Climate Change

Johnson, C., Penning-Rowsell, E. and Parker, D. (2007) Natural and imposed injustices: The challenges in implementing 'fair' flood risk management policy in England. *Geographical Journal*. [Online] 173 (4), 374–390. Available at: doi:10.1111/j.1475-4959.2007.00256.x.

Johnson, C.L. and Priest, S.J. (2008) Flood Risk Management in England: A Changing Landscape of Risk Responsibility? *International Journal of Water Resources Development*. [Online] 24 (4), 513–525. Available at: doi:10.1080/07900620801923146.

Johnston, A. and Coaffee, J. (2005) The management of local government modernisation: area decentralisation and pragmatic localism. *International Journal of Public Sector Management*. [Online] 18 (2), 108–113. Available at: doi:10.1108/09513550510584982.

Joseph, J. (2013) Resilience as embedded neoliberalism: a governmentality approach. *Resilience: International Policies, Practices and Discourses*. [Online] 1 (1), 38–52. Available at: doi:10.1080/21693293.2013.765741.

Kates, R.W. and Kasperson, J.X. (1983) Comparative Risk Analysis of Technological Hazards - A Review. *Proceedings of the National Academy of Sciences of the United States of America*. 80 (22), 7027–7038.

Kellens, W., Terpstra, T. and De Maeyer, P. (2013) Perception and Communication of Flood Risks: A Systematic Review of Empirical Research. *Risk Analysis*. [Online] 33 (1), 24–49. Available at: doi:10.1111/j.1539-6924.2012.01844.x.

Kenderdine, S. (2010) Examining climate change: an Environment Court perspective. In: Trevor Daya-Winterbottom (ed.). *Resource Management Theory and Practice*. Resource Management Law Reform Association of New Zealand, Thomson Reuters. pp. 35–92.

Klinke, A. and Renn, O. (2002) A New Approach to Risk Evaluation and Management: Risk-Based, Precaution-Based, and Discourse-Based Strategies<sup>1</sup>. *Risk Analysis*. [Online] 22 (6), 1071–1094. Available at: doi:10.1111/1539-6924.00274.

Klinke, A. and Renn, O. (2014) Expertise and experience: a deliberative system of a functional division of labor for post-normal risk governance. *Innovation: The European Journal of Social Science Research*. [Online] 27 (4), 442–465. Available at: doi:10.1080/13511610.2014.943160.

- Knight, F.H. (1921) *Risk, Uncertainty and Profit*. Cambridge, The Riverside Press.
- Koks, E.E., Jongman, B., Husby, T.G. and Botzen, W.J.W. (2015) Combining hazard, exposure and social vulnerability to provide lessons for flood risk management. *Environmental Science and Policy*. [Online] 4742–52. Available at: doi:10.1016/j.envsci.2014.10.013.
- Krippendorff, K. (2013) *Content analysis*. 3rd editio. Thousand Oaks, CA, Sage.
- Krumholz, N. (1982) A retrospective view of equity planning: Cleveland, Ohio 1969–1979. *Journal of American Planning Association*. 48 (2), 163–174.
- Kuhlicke, C. and Steinführer, A. (2013) Searching for resilience or building social capacities for flood risks? *Planning Theory & Practice*. 14 (1), 114–120.
- Kuhlicke, C., Steinführer, A., Begg, C., Bianchizza, C., et al. (2011) Perspectives on social capacity building for natural hazards: outlining an emerging field of research and practice in Europe. *Environmental Science & Policy*. [Online] 14 (7), 804–814. Available at: doi:10.1016/j.envsci.2011.05.001.
- Kurtz, H.E. (2009) Acknowledging the racial state: An agenda for environmental justice research. *Antipode*. [Online] 41 (4), 684–704. Available at: doi:10.1111/j.1467-8330.2009.00694.x.
- Landström, C., Whatmore, S.J., Lane, S.N., Odoni, N. a., et al. (2011) Coproducing flood risk knowledge: Redistributing expertise in critical ‘participatory modelling’. *Environment and Planning A*. [Online] 43 (2006), 1617–1633. Available at: doi:10.1068/a43482.
- Lane, S.N., Odoni, N., Landström, C., Whatmore, S.J., et al. (2011) Doing flood risk science differently: An experiment in radical scientific method. *Transactions of the Institute of British Geographers*. [Online] 3615–36. Available at: doi:10.1111/j.1475-5661.2010.00410.x.
- Lawhon, M. and Patel, Z. (2013) Scalar politics and local sustainability: Rethinking governance and justice in an era of political and environmental change. *Environment and Planning C: Government and Policy*. [Online] 31 (6), 1048–1062. Available at: doi:10.1068/c12273.
- Lawrence, J. and Manning, M. (2012) *Developing adaptive risk management for our changing climate*. (June). Wellington, The New Zealand Climate Change Research Institution, Victoria University Wellington.
- Lawrence, J. and Quade, D. (2011) *Perspectives on flood-risk management and climate change — implications for local government decision making*. (October). Wellington, The New Zealand Climate Change Research Institution, Victoria University Wellington.

Lawrence, J., Reisinger, A., Mullan, B. and Jackson, B. (2013) Exploring climate change uncertainties to support adaptive management of changing flood risk. *Environmental Science & Policy*. 33133–142.

Lawrence, J., Sullivan, F., Lash, A., Ide, G., et al. (2015) Adapting to changing climate risk by local government in New Zealand: institutional practice barriers and enablers. *Local Environment*. [Online] 20 (3), 298–320. Available at: doi:10.1080/13549839.2013.839643.

Lemke, T. (2002) Foucault, Governmentality, and Critique. *Rethinking Marxism*. [Online] 14 (3), 49–64. Available at: doi:10.1080/089356902101242288.

Levine, S., Ludi, E. and Jones, L. (2011) *Rethinking Support for Adaptive Capacity to Climate Change - The Role of Development Interventions. A report for the Africa Climate and Resilience Alliance*. London, Overseas Development Institute.

Lindley, S., O'Neill, J., Kandeh, J., Lawson, N., et al. (2011) *Climate Change, Justice and Vulnerability*. [Online]. (November). Available at: <http://nationalfloodforum.org.uk/wp-content/uploads/JRF-climate-change-social-vulnerability-full.pdf>.

Local Government New Zealand (2014) *Managing natural hazard risk in New Zealand – towards more resilient communities*. (October). Wellington, Local Government New Zealand.

Locke, J. (1967) Second Treatise of Government (1690). In: P. Laslett (ed.). *Locke's Two Treatises of Government*. Cambridge, Cambridge University Press. p. sec. 119.

Low, N. and Gleeson, B. (1998) *Justice, Society, and Nature*. New York, Routledge.

Lowe, P. and Wilkinson, K. (2009) How do environmental actors make governance systems more sustainable? The role of politics and ideas in policy change. In: W. Neil Adger and A. Jordan (eds.). *Governing Sustainability*. Cambridge, Cambridge University Press. pp. 76–98.

Lupton, D. (1999) *Risk and Sociocultural Theory*. D. Lupton (ed.). Cambridge, Cambridge University Press.

MacDonald, S. and Headlam, N. (2009) *Research Methods Handbook: Introductory guide to research methods for social research*. Manchester, Centre for Local Economic Strategies.

Manning, M., Howden-Chapman, P., Lindsay, G. and King, D. (2011) *Synthesis : Community vulnerability , resilience and adaptation to climate change in New Zealand*. (December). Wellington, The New Zealand Climate Change Research Institute, Victoria University Wellington.



- Manning, M., Lawrence, J., King, D.N. and Chapman, R. (2014) Dealing with changing risks: a New Zealand perspective on climate change adaptation. *Regional Environmental Change*. [Online] 15 (4), 581–594. Available at: doi:10.1007/s10113-014-0673-1.
- Marcuse, P., Connolly, J., Novy, J., Olivo, I., et al. (2009) *Searching for the Just City: Debates in Urban Theory and Practice*. [Online]. New York, Routledge. Available at: doi:10.4324/9780203878835.
- McEwen, L.J., Krause, F., Jones, O. and Hansen, J.G. (2012) Sustainable flood memories, informal knowledge and the development of community resilience to future flood risk. In: *WIT Transactions on Ecology and the Environment*. [Online]. 2012 pp. 253–264. Available at: doi:10.2495/FRIAR120211.
- Medd, W. and Marvin, S. (2005) From the politics of urgency to the governance of preparedness: A research agenda on urban vulnerability. *Journal of Contingencies and Crisis Management*. [Online] 13 (2), 44–49. Available at: doi:10.1111/j.1468-5973.2005.00455.x.
- Merz, B., Hall, J., Disse, M. and Schumann, A. (2010) Fluvial flood risk management in a changing world. *Natural Hazards and Earth System Sciences*. 10509–527.
- Miller, P. and Rose, N. (2008) *Governing the Present: Administering Economic, Social and Personal Life*. Cambridge, Polity Press.
- Ministry for the Environment (2008) *Meeting the Challenges of Future Flooding in New Zealand*. Wellington, Ministry for the Environment.
- Ministry for the Environment (2016) *Ministry for the Environment*. [Online]. 2016. Available at: <http://www.mfe.govt.nz> (Accessed: 20 March 2016).
- Ministry for the Environment (2010) *Preparing for future flooding: a guide for local government in New Zealand*. Wellington, Ministry for the Environment.
- Ministry of Civil Defence & Emergency Management (2008) *National Civil Defence Emergency Management Strategy 2007*. Wellington, Ministry of Civil Defence & Emergency Management.
- Ministry of Conservation (2010) *New Zealand Coastal Policy Statement*. Wellington, Ministry of Conservation.
- Montgomery, M.C. and Chakraborty, J. (2015) Assessing the environmental justice consequences of flood risk: a case study in Miami, Florida. *Environmental Research Letters*. [Online] 10 (9). Available at: doi:10.1088/1748-9326/10/9/095010.
- Morello-Frosch, R., Pastor Jr., M., Porras, C. and Sadd, J. (2002) Environmental Justice and Regional Inequality in Southern California: Implications for Future

Research. *Environmental Health Perspectives*. 110149–154.

Morgan, T.K.K.B. (2009) Exploring Knowledge System Synergies for Integrated Decision-Making. *Journal of Australian Indigenous Issues*. 12 (1), 299–308.

Mythen, G. (2005) Employment, individualization and insecurity: Rethinking the risk society perspective. *Sociological Review*. [Online] 53129–149. Available at: doi:10.1111/j.1467-954X.2005.00506.x.

Mythen, G. (2007) Reappraising the Risk Society Thesis: Telescopic Sight or Myopic Vision? *Current Sociology*. [Online] 55 (November), 793–813. Available at: doi:10.1177/0011392107081986.

Mythen, G. (2004) *Ulrich Beck*. London, Pluto Press.

Mythen, G. and Walklate, S. (2006) Criminology and Terrorism: Which Thesis? Risk Society or Governmentality? *British Journal of Criminology*. [Online] 46 (3), 379–398. Available at: doi:10.1093/bjc/azi074.

Novotny, P. (2000) *Where We Live, Work, and Play: The Environmental Justice Movement and the Struggle for a New Environmentalism*. West Port, CT, Praeger.

Nozick, R. (1974) *Anarchy, state, and Utopia*. Blackwell (ed.). Oxford, Blackwell.

Nussbaum, M.C. (2006) *Frontiers of Justice: Disability, Nationality, Species Membership*. Cambridge M. A., Harvard University Press.

Nussbaum, M.C. (2000) *Women and human development*. Cambridge, Cambridge University Press.

Nye, M., Tapsell, S. and Twigger-Ross, C. (2011) New social directions in UK flood risk management: Moving towards flood risk citizenship? *Journal of Flood Risk Management*. [Online] 4288–297. Available at: doi:10.1111/j.1753-318X.2011.01114.x.

O'Hare, P. and White, I. (2018) Beyond 'just' flood risk management : the potential for — and limits to — alleviating flood disadvantage. *Regional Environmental Change*. [Online] 18385–396. Available at: doi:10.1007/s10113-017-1216-3.

O'Malley, P. (2000) Uncertain subjects: risks, liberalism and contract. *Economy and Society*. [Online] 29 (4), 460–484. Available at: doi:10.1080/03085140050174741.

O'Sullivan, J.J., Bradford, R. a., Bonaiuto, M., De Dominicis, S., et al. (2012) Enhancing flood resilience through improved risk communications. *Natural Hazards and Earth System Science*. [Online] 122271–2282. Available at:

doi:10.5194/nhess-12-2271-2012.

Okereke, C. (2008) *Global justice and neoliberal environmental governance*. Abingdon, Routledge.

Orange, C. (1989) *The Treaty of Waitangi*. New Zealand, Bridget Williams Books.

Palmer, G. and Butler, A. (2016) *A Constitution for Aotearoa New Zealand*. Wellington, New Zealand, Victoria University Press.

Paton, D. (2007) Preparing for natural hazards: the role of community trust. *Disaster Prevention and Management*. [Online] 16 (3), 370–379. Available at: doi:10.1108/09653560710758323.

Pearce, J. and Kingham, S. (2008) Environmental inequalities in New Zealand: A national study of air pollution and environmental justice. *Geoforum*. [Online] 39 (2), 980–993. Available at: doi:10.1016/j.geoforum.2007.10.007.

Pearce, J., Kingham, S. and Zawar-Reza, P. (2006) Every breath you take? Environmental justice and air pollution in Christchurch, New Zealand. *Environment and Planning A*. [Online] 38 (5), 919–938. Available at: doi:10.1068/a37446.

Penning-Rowsell, E.C. (2014) A realistic assessment of fluvial and coastal flood risk in England and Wales. *Transactions of the Institute of British Geographers*. [Online] 40 (1), 44–61. Available at: doi:10.1111/tran.12053.

Pitt, M. (2008) *The Pitt Review: Lessons learnt from the 2007 floods*. London, Cabinet Office.

Du Plessis, W., Kennedy, A., Daya-Winterbottom, T., Martin, P., et al. (2015) *The Search for Environmental Justice*. Cheltenham, UK, Edward Elgar Publishing.

Preston, B.J. (2016) The adequacy of the law in achieving climate change justice – some preliminary comments. *Journal of Energy & Natural Resources Law*. [Online] 34 (1), 45–50. Available at: doi:10.1080/02646811.2016.1120117.

Priest, S. (2014) *Review of international flood insurance and recovery mechanisms : Implications for New Zealand and the resilience of older people - Summary*. London, Flood Hazard Centre, University of Middlesex.

Proctor, E.-M. (2010) *Toi tu te whenua, toi tu te tangata: A Holistic Māori Approach to Flood Management*. [Online]. University of Waikato. Available at: doi:10.1007/978-94-007-6916-8\_9.

Quade, D. and Lawrence, J. (2011) *Vulnerability and adaptation to increased flood risk with climate change — Hutt Valley household survey*. (October).

Wellington, The New Zealand Climate Change Research Institute, Victoria University Wellington.

Quality Planning (2016) *Quality Planning*. [Online]. 2016. Available at: <http://www.qualityplanning.org.nz> (Accessed: 1 April 2016).

Queensland Floods Commission of Inquiry (2012) *Queensland Floods Commission of Inquiry Final Report*. [Online]. Available at: <http://www.floodcommission.qld.gov.au/publications/final-report/>.

Rawls, J. (1971) *A Theory of Justice*. Rev. ed. 1. Cambridge M. A., Belknap Press of Harvard University Press.

Rawls, J. (1985) Justice as Fairness : Political not Metaphysical. *Philosophy & Public Affairs*. 14 (3), 223–251.

Reith, G. (2004) Uncertain times: the notion of ‘risk’ and the development of modernity. *Time & Society*. [Online] 13 (2), 383–402. Available at: doi:10.1177/0961463X04045672.

Renn, O. (2015) Stakeholder and Public Involvement. *International Journal of Disaster Risk Science*. [Online] 68–20. Available at: doi:10.1007/978-3-642-13926-0.

Richards, D. and Smith, M.J. (2002) *Governance and Public Policy in the UK*. Oxford, Oxford University Press.

Richardson, E. a, Pearce, J. and Kingham, S. (2011) Is particulate air pollution associated with health and health inequalities in New Zealand? *Health & Place*. [Online] 17 (5), 1137–1143. Available at: doi:10.1016/j.healthplace.2011.05.007.

Rixecker, S. and Tipene-Matua, B. (2012) Maori Kaupapa and the inseparability of social and environmental justice: an analysis of bioprospecting and a people’s resistance to (bio)cultural assimilation. In: Robert D. Bullard, Julian Agyeman, and Bob Evans (eds.). *Just Sustainabilities: Development in an Unequal World*. London, Earthscan. pp. 1–361.

Rouse, H. (2012) *Flood risk management research in New Zealand: Where are we, and where are we going?* (April). Christchurch, GNS Science.

Royal Society of New Zealand (2016) *Climate Change Implications for New Zealand*. Royal Society of New Zealand.

Rufat, S., Tate, E., Burton, C.G. and Sayeed, A. (2015) Social vulnerability to floods : Review of case studies and implications for measurement. *International Journal of Disaster Risk Reduction*. [Online] 14470–486. Available at: doi:10.1016/j.ijdr.2015.09.013.

Rydin, Y. and Pennington, M. (2010) Public Participation and Local Environmental Planning: The collective action problem and the potential of social capital. *Local Environment*. [Online] 5 (2), 153–169. Available at: doi:10.1080/13549830050009328.

Ryks, J., Wyeth, J., Baldwin, S. and Kennedy, N. (2010) The Teeth of the Taniwha. *Planning Quarterly*. (June), 39–42.

Salmond, K., Howden-Chapman, P., Woodward, A. and Salmond, C. (1999) Setting our sights on justice: Contaminated sites and socio-economic deprivation in New Zealand. *International Journal of Environmental Health Research*. [Online] 9 (1), 19–29. Available at: doi:10.1080/09603129973326.

Sandel, M.J. (2011) Distinguished Lecture: Justice: What's the Right Thing To Do? *Boston University Law Review*. 91 (4), 1303–1310.

Sandel, M.J. (2009) *Justice: What's The Right Thing To Do?* London, Allen Lane.

Sandel, M.J. (2007) *Justice - A Reader*. New York, Oxford University Press.

Saunders, W., Forsyth, J., Johnston, D. and Becker, J. (2007) Strengthening linkages between land-use planning and emergency management in New Zealand. *Australian Journal of Emergency Management*. 22 (1), 36–43.

Saunders, W., Grace, E., Beban, J. and Johnston, D. (2015) Evaluating Land Use and Emergency Management Plans for Natural Hazards as a Function of Good Governance: A Case Study from New Zealand. *International Journal of Disaster Risk Science*. [Online] 6 (1), 62–74. Available at: doi:10.1007/s13753-015-0039-4.

Saunders, W.S.A., Beban, J.G. and Coomer, M.A. (2014a) *Analysis of natural hazard provisions in regional policy statements, territorial authority plans and CDEM group plans*. GNS Science Report 2014/28. Lower Hutt, GNS Science.

Saunders, W.S.A., Beban, J.G. and Coomer, M.A. (2014b) *Assessment of council capability and capacity for managing natural hazards through land use planning*. Report 2014/50. Lower Hutt, GNS Science.

Saunders, W.S.A., Beban, J.G. and Kilvington, M. (2013) *Risk-based land use planning for natural hazard risk reduction*. (September). Miscellaneous Series 67. Lower Hutt, GNS Science.

Saunders, W.S. a. and Becker, J.S. (2015) A discussion of resilience and sustainability: Land use planning recovery from the Canterbury earthquake sequence, New Zealand. *International Journal of Disaster Risk Reduction*. [Online] 14 (1), 73–81. Available at: doi:10.1016/j.ijdr.2015.01.013.

Sayers, P., Galloway, G., Penning-Rowsell, E.C., Yuanyuan, L., et al. (2014) Strategic flood management: ten 'golden rules' to guide a sound approach.

*International Journal of River Basin Management*. [Online] 13 (2), 137–151.  
Available at: doi:10.1080/15715124.2014.902378.

Schelfaut, K., Pannemans, B., van der Craats, I., Krywkow, J., et al. (2011) Bringing flood resilience into practice: The FREEMAN project. *Environmental Science and Policy*. [Online] 14 (7), 825–833. Available at: doi:10.1016/j.envsci.2011.02.009.

Schlosberg, D. (2012) Climate Justice and Capabilities: Framework for Adaptation Policy. *Ethics and International Affairs*. 26 (4), 445–462.

Schlosberg, D. (2007) *Defining Environmental Justice*. Oxford, Oxford University Press.

Schlosberg, D. (2009) *Defining Environmental Justice: Theories, Movements and Nature*. Cary, NC, Oxford University Press.

Schlosberg, D. (2004) Reconceiving Environmental Justice: Global Movements and Political Theories. *Environmental Politics*. 13 (3), 517–540.

Schlosberg, D. (2013) Theorising environmental justice: the expanding sphere of a discourse. *Environmental Politics*. [Online] 22 (1), 37–55. Available at: doi:10.1080/09644016.2013.755387.

Schlosberg, D. and Carruthers, D. (2010) Indigenous Struggles , Environmental Justice , and Community Capabilities. *Global Environmental Politics*. 10 (4), 12–35.

Schneiderbauer, S. and Ehrlich, D. (2004) *Risk, Hazard and People's Vulnerability to Natural Hazards: A Review of Definitions, Concepts and Data*. (January).

Scott, M. (2013) Living with flood risk. *Planning Theory & Practice*. [Online] 14 (1), 103–106. Available at: doi:10.1080/14649357.2012.761904.

Scott, M. (2000) Risk Society or Angst Society? Two Views of Risk, Consciousness and Community. In: Barbara Adam, Ulrich Beck, and Joost van Loon (eds.). *The Risk Society and Beyond*. London, SAGE. p.

Sen, A. (2010) *The Idea of Justice*. London, Penguin.

Sen, A.K. (1999) *Development as Freedom*. New York, Knopf.

Sen, A.K. (1992) *Inequality Re-examined*. New York, Russell Sage Foundation.

Shaw, D., Scully, J. and Hart, T. (2014) The paradox of social resilience: How cognitive strategies and coping mechanisms attenuate and accentuate resilience. *Global Environmental Change*. [Online] 25194–203. Available at:

doi:10.1016/j.gloenvcha.2014.01.006.

Shaw, R. and Eichbaum, C. (2008) *Public policy in New Zealand: Institutions, Processes and Outcomes*. 2nd edition. Auckland, Pearson Education New Zealand.

Simmonds, N., Kukutai, T. and Ryks, J. (2016) Here to stay: Reshaping the regions through mana Māori. In: P. Spoonley (ed.). *Rebooting the Regions: Why low or zero growth needn't mean the end of prosperity*. Wellington, New Zealand, Massey University Press. pp. 79–105.

Sims, M. and Thompson-Fawcett, M. (2002) Planning for the cultural landscape. In: M. Kawharu (ed.). *Whenua: Managing Our Resources*. Auckland, Reeds Books. pp. 252–271.

Singer, P. (2008) One Atmosphere. In: Thom Brooks (ed.). *The Global Justice Reader*. Oxford, Blackwell.

Slovic, P. (1987) Perception of Risk. *Science*. 236 (4799), 280–285.

Smit, B. and Wandel, J. (2006) Adaptation, adaptive capacity and vulnerability. *Global Environmental Change*. [Online] 16282–292. Available at: doi:10.1016/j.gloenvcha.2006.03.008.

Smith, W., Davies-Colley, C., Mackay, A. and Bankoff, G. (2011) Social impact of the 2004 Manawatu floods and the ‘ hollowing out ’ of rural New Zealand. *Disasters*. 35 (3), 540–553.

Smith, W., Kelly, S. and Owen, S. (2012) Coping with hazards: A comparison of farmers’ responses to drought and flood in the Manawatu, NZ. *International Journal of Mass Emergencies & Disasters*. 30 (1), 82–110.

Standards Australia/Standards New Zealand (2009) *AS/NZS ISO 31000:2009 Risk management - Principles and guidelines*. [Online]. Available at: doi:ISBN 978-1-86975-127-2.

Statistics New Zealand (2009) *Are New Zealanders Living Closer to the Coast?* [Online]. 2009. Available at: [http://www.stats.govt.nz/browse\\_for\\_stats/population/Migration/internal-migration/are-nzs-living-closer-to-coast.aspx](http://www.stats.govt.nz/browse_for_stats/population/Migration/internal-migration/are-nzs-living-closer-to-coast.aspx) (Accessed: 23 March 2017).

Steele, W., Maccallum, D. and Byrne, J. (2012) Planning the Climate-just City. *International Planning Studies*. [Online] 17 (1), 67–83. Available at: doi:10.1080/13563475.2011.638188.

Steinfuhrer, A., Kuhlicke, C., De Marchi, B., Scolobig, A., et al. (2009) *Local Communities at Risk from Flooding: Social Vulnerability, Resilience and Recommendations for Flood Risk Management in Europe*. Helmholtz-Zentrum für Umweltforschung, UFZ.

Stirling, A. (2010) Comment: Keep it complex. *Nature*. 468 (23–30 December), 1029–1031.

Stirling, A. (2009) Participation, precaution and reflexive governance for sustainable development. In: W. Neil Adger and A. Jordan (eds.). *Governing Sustainability*. Cambridge, Cambridge University Press. pp. 193–225.

Swyngedouw, E. (2009) The antinomies of the post-political city: in search of a democratic politics of environmental production. *International Journal of Urban and Regional Research*. 33 (2), 601–620.

Swyngedouw, E. (2009) The antinomies of the postpolitical city: In search of a democratic politics of environmental production. *International Journal of Urban and Regional Research*. [Online] 33 (3), 601–620. Available at: doi:10.1111/j.1468-2427.2009.00859.x.

Swyngedouw, E. and Heynen, N.C. (2003) Urban Political Ecology, Justice and the Politics of Scale. *Antipode*. [Online] (Special Issue), 898–918. Available at: doi:10.1111/j.1467-8330.2003.00364.x.

Sze, J. and London, J.K. (2008) Environmental Justice at the Crossroads. *Sociology Compass*. [Online] 21331–1354. Available at: doi:10.1111/j.1751-9020.2008.00131.x.

Terpstra, T. and Gutteling, J.M. (2008) Households' Perceived Responsibilities in Flood Risk Management in The Netherlands. *International Journal of Water Resources Development*. [Online] 24 (4), 555–565. Available at: doi:10.1080/07900620801923385.

Thaler, T. and Hartmann, T. (2016) Justice and flood risk management: reflecting on different approaches to distribute and allocate flood risk management in Europe. *Natural Hazards*. [Online] 83 (1), 129–147. Available at: doi:10.1007/s11069-016-2305-1.

Thaler, T. and Priest, S. (2014) Partnership funding in flood risk management: new localism debate and policy in England. *Area*. [Online] 46418–425. Available at: doi:10.1111/area.12135.

Thames Coromandel District Council (2010) *Thames Coromandel Operative District Plan*. Thames Coromandel District Council, Thames.

Thames Coromandel District Council (2016) *Thames Coromandel Proposed District Plan*. Thames Coromandel District Council, Thames.

Tobin, G. (1999) Sustainability and community resilience: the holy grail of hazards planning? *Environmental Hazards*. [Online] 1 (1), 13–25. Available at: doi:10.3763/ehaz.1999.0103.

Tonkin & Taylor (2016) *Risk Based Approach to Natural Hazards under the*



- RMA. (June). Prepared for the Ministry for the Environment, New Zealand.
- Tschakert, P. (2009) Digging deep for justice: A radical re-imagination of the artisanal gold mining sector in Ghana. *Antipode*. [Online] 41 (4), 706–740. Available at: doi:10.1111/j.1467-8330.2009.00695.x.
- Tulloch, J. and Lupton, D. (2003) *Risk and everyday life*. London, Sage Publications.
- United Church of Christ (1987) *Toxic Wastes and Race in the United States: A national report on the racial and socio-economic characteristics of communities surrounding hazardous waste sites*. New York, United Church of Christ.
- Upton, C. (2014) The new politics of pastoralism: Identity, justice and global activism. *Geoforum*. [Online] 54207–216. Available at: doi:10.1016/j.geoforum.2013.11.011.
- Visvanathan, S. (1998) A Celebration of Difference: Science and Democracy in India. *Science, American Association for the Advancement of Science*. 280 (5360), 42–43.
- Waikato Regional Council (2013) *Coromandel Flood Protection Scheme Design Report*. 45. Hamilton, Waikato Regional Council.
- Waikato Regional Council (2016a) *Targeted Rates*. [Online]. 2016. Available at: <http://www.waikatoregion.govt.nz/council/rates/targeted-rates> (Accessed: 2 February 2016). Hamilton, Waikato Regional Council
- Waikato Regional Council (n.d.) *The Kauaeranga River flood protection scheme*. Hamilton, Waikato Regional Council.
- Waikato Regional Council (2009) *The Peninsula Project: Coromandel Town Flood Protection Proposal*. Hamilton, Waikato Regional Council.
- Waikato Regional Council (2014a) *The Peninsula Project: Graham's Creek Newsletter*. (July). Hamilton, Waikato Regional Council.
- Waikato Regional Council (2014b) *The Peninsula Project: Have your say on flood mitigation - Newsletter*. (April). Hamilton, Waikato Regional Council
- Waikato Regional Council (2016b) *Waikato Regional Council*. [Online]. 2016. Available at: <http://www.waikatoregion.govt.nz> (Accessed: 5 March 2016).
- Waikato Regional Council (2016c) *Waikato Regional Policy Statement - Te Tauāki Kaupapa here ā-Rohe*. Hamilton, Waikato Regional Council
- Waikato Regional Council and Thames Coromandel District Council (2012a) *The Peninsula Project: Flood mitigation for Graham's Creek Newsletter*. (December).

Hamilton, Waikato Regional Council.

Waikato Regional Council and Thames Coromandel District Council (2012b) *The Peninsula Project: Graham's Creek Newsletter*. (March). Hamilton, Waikato Regional Council.

Waikato Regional Council and Thames Coromandel District Council (2011) *The Peninsula Project: Graham's Creek Newsletter*. (November). Hamilton, Waikato Regional Council.

Walker, G. (2009a) Beyond Distribution and Proximity: Exploring the Multiple Spatialities of Environmental Justice. *Antipode*. [Online] 41 (4), 614–636. Available at: doi:10.1111/j.1467-8330.2009.00691.x.

Walker, G. (2012) *Environmental justice*. London, Routledge.

Walker, G. (2009b) Environmental justice and normative thinking. *Antipode*. [Online] 41 (1), 203–205. Available at: doi:10.1111/j.1467-8330.2008.00663.x.

Walker, G. and Burningham, K. (2011) Flood risk, vulnerability and environmental justice: Evidence and evaluation of inequality in a UK context. *Critical Social Policy*. [Online] 31 (2), 216–240. Available at: doi:10.1177/0261018310396149.

Walker, G. and Day, R. (2012) Fuel poverty as injustice: Integrating distribution, recognition and procedure in the struggle for affordable warmth. *Energy Policy*. [Online] 4969–75. Available at: doi:10.1016/j.enpol.2012.01.044.

Walker, G., Tweed, F. and Whittle, R. (2014) A framework for profiling the characteristics of risk governance in natural hazard contexts. *Natural Hazards and Earth System Sciences*. [Online] 14155–164. Available at: doi:10.5194/nhess-14-155-2014.

Walker, G., Whittle, R., Medd, W. and Walker, M. (2011) Assembling the flood: Producing spaces of bad water in the city of Hull. *Environment and Planning A*. [Online] 43 (10), 2304–2320. Available at: doi:10.1068/a43253.

Warnock, C. and Baker-Galloway, M. (2015) *Focus on resource management law*. Wellington, LexisNexis NZ Limited.

Wehn, U., Rusca, M., Evers, J. and Lanfranchi, V. (2015) Participation in flood risk management and the potential of citizen observatories: A governance analysis. *Environmental Science & Policy*. [Online] 48225–236. Available at: doi:10.1016/j.envsci.2014.12.017.

White, I. (2015) *Environmental planning in context*. London, Palgrave Macmillan.

- White, I. (2013) The more we know, the more we know we don't know: Reflections on a decade of planning, flood risk management and false precision. *Planning Theory & Practice*. [Online] 14 (1), 106–114. Available at: doi:10.1080/14649357.2012.761904.
- White, I. (2010) *Water and the City: Resilience and Planning for a Sustainable Future*. New York, Routledge.
- White, I. and Haughton, G. (2017) Risky times : Hazard management and the tyranny of the present. *International Journal of Disaster Risk Reduction*. [Online] 22412–419. Available at: doi:10.1016/j.ijdr.2017.01.018.
- White, I. and O'Hare, P. (2014) From rhetoric to reality: which resilience, why resilience, and whose resilience in spatial planning? *Environment and Planning C: Government and Policy*. [Online] 32 (5), 934–950. Available at: doi:10.1068/c12117.
- Whittle, R., Medd, W., Deeming, H., Kashefi, E., et al. (2010) *After the Rain – learning the lessons from flood recovery in Hull - Final Project Report*. Lancaster, University of Lancaster.
- Winchester, H.P.M. and Rofo, M.W. (2010) Qualitative research and its place in human geography. In: I. Hay (ed.). *Qualitative Research Methods in Human Geography*. 3rd editio. Canada, Oxford University Press. pp. 2–25.
- Wright, D. (2004) *Failure to consult: Maori perspectives on the Far North District Council and the Resource Management Act*. Dissertation for Master in Social Science. University of Waikato.
- Yin, R.K. (2014) *Case Study Research: Design and Methods*. 5th editio. Thousand Oaks, CA, Sage Publications.
- Young, I.M. (2000) *Inclusion and democracy*. Oxford, Oxford University Press.
- Young, I.M. (1990) *Justice and the politics of difference*. New Jersey, Princeton University Press.

# Appendices

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## Appendix I

**Philosophy Programme**  
School of Social Sciences  
Faculty of Arts and Social  
Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton 3240  
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www.waikato.ac.nz



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Charlotte Martynoga  
Professor Iain White  
Dr Colin McLeay

Geography, Tourism & Environmental Programming

20 November 2014

Dear Charlotte

**Re: FS2014-44 The environmental justice implications of the Living with Risk agenda:  
planning for flooding in New Zealand**

Thank you for sending me your revised application. This letter confirms that you have formal ethical approval.

I wish you well with your research.

Kind regards,

Ruth Walker  
*Chair*  
*Faculty of Arts and Social Sciences Human Research Ethics Committee.*

## Appendix II

Geography, Tourism & Environmental  
Planning Programmes  
School of Social Sciences  
Faculty of Arts & Social Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand



### Information Sheet for Interviews with Policy-makers and Planners

Researcher: Charlotte Martynoga  
Contact: 0279 316 616  
Email: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

Supervisor: Professor Iain White  
Contact: 07 838 4466 extn. 8834  
Email: [ianw@waikato.ac.nz](mailto:ianw@waikato.ac.nz)

#### The Research:

Thank you for taking the time to consider this research. I am a doctoral student in environmental planning at the University of Waikato. As part of my thesis I am undertaking research to examine the environmental justice implications of how flood risk is managed within the New Zealand planning system.

#### Your Involvement:

I would like to invite you to participate in an interview as a policy-maker/planner. I will be asking you questions that scrutinise the roles and responsibilities of local government and residents in managing the risk of flooding. I expect our interview will last no more than 1 hour, and it will be held at a time and place that suits you. A copy of our interview will be sent to you afterwards to ensure accuracy of information.

As a participant you have the following rights:

- To contact me directly to ask any further questions about the research prior to the interview.
- Decline to answer any particular questions.
- You may request that any material be erased.
- You may withdraw from the research up until one month after the interview.

#### Confidentiality:

Due to your professional position it would be impractical to ensure anonymity to your responses. Your name will not be disclosed in the

course of this research, however an occupation title or position may be used. The recordings and written transcripts of the interviews will be stored securely in a private office in the University. Any electronic information will be accessible only by password and this will be changed regularly to ensure documentation security. All records held will be destroyed by me 5 years after the completion of the PhD thesis; unless you have requested, on the signed consent form, that recorded material is returned to you.

**What will my information be used for?**

The results of this project will be presented as part of my PhD thesis. In accordance with University guidelines, three hardcopies must be produced and one accessible on-line copy. The research findings may also be used in conference presentations and journal publications. I confirm that no one is sponsoring me or paying for this research to be undertaken.

**What next?**

If you would be like to take part in my research, or have any questions, please contact me at the details below. I look forward to hearing from you.

**Thank you.**

Researcher: Charlotte Martynoga

Contact: 07 838 4466 extn. 4046 / mob: 0279 316 616

Email: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee. Email: [fass-ethics@waikato.ac.nz](mailto:fass-ethics@waikato.ac.nz) Postal address: Faculty of Arts and Social Sciences, Te Kura Kete Aronui, The University of Waikato, Private Bag 3105, Hamilton 3240.

## Appendix III

**Environmental Planning**  
Faculty of Arts & Social Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

### Participant Consent Form for Interviews with Policy-makers and Planners

*A completed copy of this form should be retained by both the researcher and the participant.*

**Description of project:** The aim of this research is to examine the environmental justice implications of how flood risk is managed within the New Zealand planning system.

**Name of person interviewed:** .....

I have received a copy of the Information Sheet describing the research project. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my participation at any time up until one month after the interview.

During the interview, I understand that I do not have to answer questions unless I am happy to talk about the topic. I can stop the interview at any time, and I can ask to have the recording device turned off at any time.

When I sign this consent form, I will retain ownership of my interview, but I give consent for the researcher to use the interview for the purposes of the research outlined in the Information Sheet. I understand that my personal identity will remain confidential in the presentation of the research findings.

Please complete the following checklist. Tick [✓] the appropriate box for each point.	YES	NO
I wish to view the transcript of the interview.		
I wish to be given the interview recordings after the 5 year required storage period.		
I wish to receive a summary of the findings.		

Participant :	_____	Researcher :	Charlotte Martynoga
Signature :	_____	Signature :	_____
Date :	_____	Date :	_____
Contact Details :	_____	Contact Details :	07 838 4466 extn. 4046
	_____		Mob : 0279 316 616
	_____		crgm1@students.waikato.ac.nz
	_____		_____

## Appendix IV

### Interview Questions for Planners and Policy-Makers

1. What do you understand is a risk-based planning approach for flood risk management?  
*Extra:* How is the risk-based approach different from previous methods?
2. How are decisions to invest in flood protection and mitigation made by your Council?  
The Peninsula Project focused on priority flood risk areas – are there any lower priority areas that have not received investment and are of concern to you?
3. How does the Council monitor its objectives and policies for flood hazards?  
How do you believe this could be improved?
4. What improvements could be made to the integration between the different levels of government for flood risk management?  
Do you, for example, see the split in land-use planning responsibilities for hazards between regional and district councils as being problematic?  
Do you believe there is a need for greater strategic oversight?
5. Given the cost implications of structural works, have you discussed with communities the concept of living with risk or as a Council considered managed retreat?
6. How are communities involved in the design of flood risk management policies and practices?  
What lessons can be learnt from Graham's Creek, Tairu as an example of community engagement?
7. To what extent are social group differences and vulnerabilities taken into account in your Council's flood risk management?  
How does the Council assess the vulnerabilities/resilience/adaptive capabilities of the local population to residual flood risk?
8. How could planning work better with CDEM for flood risk?
9. What are the major challenges that your Council face when managing flood hazards for local communities?



## Appendix V

### Interview Questions for Mayor/Councillors

1. In your opinion, what are the major challenges that the Council face when managing floods for local communities?
2. Do you consider that the split in land-use planning responsibilities for hazards between regional and district councils is problematic?
  - What improvements could be made to the integration between the different levels of government for flood risk management?

#### *Justice as recognition*

3. Do you think that Councils adequately involve local people in local decisions for flood risk management?  
If no, how could Councils improve their interaction with local people?

#### *Procedural justice*

4. Do you think that those residents that directly benefit from flood prevention works should pay greater rates?

#### *Distributive justice*

5. Do you think that your area of TC gets a fair share of resources for flood management, when compared to the wider region? If yes why so, or if not why not?
6. Given the cost implications of structural works, have you discussed with Council or communities the concept of living with risk or considered managed retreat? What are your views of these approaches?
7. Do you think that some groups of society are disproportionately represented in living in areas of flood risk? If so why is this?

#### *Capabilities approach to justice*

8. How do you think Councils should recognise the different needs and abilities of people to cope with flooding?
  - For example, do you think some people in the community (such as the older and more vulnerable) need more assistance to cope and adapt to flood risk?
9. What do you think Council could do better – is it more information and advice or something else?
10. How can greater participation be encouraged to improve community resilience to residual flood risk?

## **Appendix VI**

### **Interview Questions for Iwi**

#### ***Justice as recognition***

1. Has your iwi/hapu discussed flooding issues with the Council?
  - If not, why did you not feel able to contribute to the Council's discussions?
  - If yes, do you consider that your involvement and discussions with Council have been worthwhile?
    - a) Were you listened to?
    - b) Were your views and local knowledge taken on board?
    - c) Did you receive feedback that explained the decisions that were taken?
2. Do you think that Councils adequately involve iwi in local decisions for flood risk management?
  - If no, how could Councils improve their interaction with iwi?

#### ***Procedural justice***

3. Do you think that the decisions on flood management have been fair for all iwi/hapu residents in Tairua/Thames? If yes why so, or if not why not?
4. Do you think that those residents that directly benefit from flood prevention works should pay greater rates?

#### ***Distributive justice***

5. Do you think that your area of TC gets a fair share of resources for flood management, when compared to the wider region? If yes why so, or if not why not?
6. Do you think that some groups of society are disproportionately represented in living in areas of flood risk? If so why is this?

#### ***Capabilities approach to justice***

7. How do you think Councils should recognise the different needs and abilities of people to cope with flooding?
  - For example, do you think some people in the community (such as the older and more vulnerable) need more assistance to cope and adapt to flood risk?
8. What do you think Council could do better in (a) their consultation with iwi, and (b) their approach to flood risk management ?
9. Do you feel that your community works well together in tackling flooding?
  - How can greater participation be encouraged to improve community resilience to flood risk?

## Appendix VII

### Questionnaire on Flood Risk for Local Residents

#### Freepost 78837

Attention: Charlotte Martynoga  
Environmental Planning  
The University of Waikato  
Private Bag 3105  
Hamilton, 3240



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

Thank you for taking the time to contribute to this research project which investigates peoples' awareness of flood risk and examines the support available for local residents in New Zealand. Please complete the following questions, by circling the appropriate answers or writing an explanation. All answers will be confidential and data will not be shared.

- Are you aware that the District Council has demarcated some areas as being at risk of flooding?  
Yes      No
- How would you rate your level of awareness of flood risk in your local neighbourhood?  
Very high      high      moderate      low      very low
- Have you seen a flood hazard map for your local area?  
Yes      No
- How useful do you think hazard maps are to inform local residents about the risk of a flood event?  
Very useful      somewhat useful      not useful      don't know
- Have you had personal experience of floodwater entering your home?  
Yes      No      Please specify.....
- What measures have you taken or considered as a way of managing your risk of flooding?

<i>Do you have home insurance?</i>	Yes	No
<i>Moved valuable items from floor level</i>	Yes	No
<i>Installed property flood protection measures, such as door barriers, raising floor levels &amp; electrical fixtures</i>	Yes	No
<i>Undertaken physical works eg keep drains around property clean</i>	Yes	No
<i>Discussed with other local residents</i>	Yes	No
<i>Discussed with a local community group</i>	Yes	No
<i>Talked to the Council</i>	Yes	No
<i>Made an evacuation plan</i>	Yes	No
<i>Considered selling your home</i>	Yes	No
<i>Other, please specify .....</i>		

7. Have you participated in any Council meetings or workshops regarding flood risk?

Yes      No

8. Do you think the cost of flood protection measures should be:

<i>Shared across the whole community in rate payments</i>	Yes	No
<i>Only paid by those households that directly benefit</i>	Yes	No
<i>Apportioned to property owners based on property value</i>	Yes	No
<i>The regional council's responsibility</i>	Yes	No
<i>The district council's responsibility</i>	Yes	No
<i>Covered by national government</i>	Yes	No

*Please explain your answer:*

9. What more support would you like to help manage your risk of flooding?

*Please give your answer:*

10. How many people currently live in your household?

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 or more

11. Which one of the following best describes your household?

<i>A one person household</i>	
<i>A couple without children</i>	
<i>Two parent family with dependent children</i>	
<i>One parent family with dependent children</i>	
<i>A non-family household</i>	
<i>Other, please state:</i> .....	

12. Are you the *owner* / *tenant* of this house?

13. Which ethnic group do you belong to?  
*Māori / Pākehā New Zealander / Pacific / Chinese / Indian / European /*  
*Other please specify .....*
14. How old are you?  
*Less than 20 years / 20-29 / 30-39 / 40-49 / 50-59 / 60-69 / 70-79 / 80 years and over*
15. What is your employment status?  
*Employed / unemployed / retired / house person / student /*  
*Other, please specify*  
*.....*
16. What is your highest educational qualification?  
*No school qualification / Secondary school qualification / Trade or professional*  
*certificate or diploma / University degree / Other, please specify*  
*.....*
17. What is your approximate total household income for 2015?  
*Less than \$25,000 / \$25-50,000 / \$50-75,000 / \$75-100,000 / Over \$100,000*
18. Please provide any information that you believe would assist with my research.

**Thank you** for taking the time to complete this questionnaire.

If you would be willing to take part in a face-to-face or phone **interview** and share your knowledge and opinions on flood risk with me, Charlotte Martynoga, please provide your contact details below:

*Participant's name:* .....

*Address:* .....

*Email:* .....

*Phone number:* .....

Alternatively, if you would prefer not to be interviewed but would like to provide further information please email me: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

## Appendix VIII

**Environmental Planning**  
Faculty of Arts & Social Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton, 3240  
New Zealand



### Information Sheet for Questionnaire

Researcher: Charlotte Martynoga  
Contact: 0279 316 616  
Email: crgm1@students.waikato.ac.nz

Supervisor: Professor Iain White  
Contact: 07 838 4466 extn. 8834  
Email: iainw@waikato.ac.nz

#### Research Project:

Thank you for taking the time to consider this research. I am a doctoral student in environmental planning at the University of Waikato. I am undertaking research to understand peoples' awareness of flood risk in New Zealand and to examine the support available for local residents.

#### Your Involvement:

Your contribution as a member of the community will be extremely valuable to my research. I would be grateful if you would answer the attached set of questions. The form should be completed by an adult resident in the household, preferably the owner or tenant. The form is likely to take less than 10 minutes to complete.

- You have the right to decline to answer any particular question.
- You may contact me directly to ask any further questions about the research.
- Your name or any other identifying characteristics will not be disclosed to anyone in the course of this research.

#### Confidentiality:

The completed questionnaires will be stored securely in a private office in the University. Any electronic information will be anonymised and accessible only by password and this will be changed regularly to ensure security. All records held will be destroyed by me 5 years after the completion of the PhD thesis.

#### What will this information be used for?

The results of this project will be presented as part of my PhD thesis. In accordance with University guidelines, three hardcopies must be produced and one accessible on-line copy. The research findings may also be used in

conference presentations and journal publications. I confirm that no one is sponsoring me or paying for this research to be undertaken.

**What next?**

- Please complete the questionnaire and return it to me in the envelope with the **freepost** address at the top of questionnaire form showing outwards.
- If you would be willing to take part in a follow-up interview, and share your knowledge and opinions with me, please provide your contact details on the questionnaire form.

**Thank you.**

Researcher: Charlotte Martynoga

Contact: 07 838 4466 extn. 4046 / mob: 0279 316 616

Email: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee. Email: [fass-ethics@waikato.ac.nz](mailto:fass-ethics@waikato.ac.nz)  
Postal address: Faculty of Arts and Social Sciences, Te Kura Kete Aronui, The University of Waikato, Private Bag 3105, Hamilton 3240.

## Appendix IX

**Environmental Planning**  
Faculty of Arts & Social Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

### Information Sheet for Interviews with Local Residents

Researcher: Charlotte Martynoga  
Contact: 0279 316 616  
Email: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

Supervisor: Professor Iain White  
Contact: 07 838 4466 extn. 8834  
Email: [iainw@waikato.ac.nz](mailto:iainw@waikato.ac.nz)

#### The Research:

Thank you for taking the time to consider this research. I am a doctoral student in environmental planning at the University of Waikato. As part of my thesis I am undertaking research to understand peoples' awareness of flood risk and the support available for local residents.

#### Your Involvement:

I would like to invite you to participate in an interview as a local resident. I will be asking you questions relating to your views on the appropriate ways to reduce flood risk for New Zealand communities. I will seek your opinions on the roles and responsibilities of local government, agencies and individuals for flood risk management. I expect our discussion will last for 15-30 minutes and can be conducted on the telephone. A copy of our interview will be sent to you afterwards to ensure accuracy of information.

As a participant you have the following rights:

- To contact me directly to ask any further questions about the research prior to the interview.
- Decline to answer any particular questions.
- You may request that any material be erased.
- To anonymity. Your name or any other identifying characteristics will not be disclosed in the course of this research.
- You are welcome to have the support of whānau during the interview.
- You may withdraw from the research up until one month after the interview.



**Confidentiality:**

The recordings and written transcripts of the interviews will be stored securely in a private office in the University. Any electronic information will be accessible only by password and this will be changed regularly to ensure documentation security. All records held will be destroyed by me 5 years after the completion of the PhD thesis unless you have requested, on the signed consent form, that recorded material is returned to you.

**What will my information be used for?**

The results of this project will be presented as part of my PhD thesis. In accordance with University guidelines, three hardcopies must be produced and one accessible on-line copy. The research findings may also be used in conference presentations and journal publications. I confirm that no one is sponsoring me or paying for this research to be undertaken.

**What next?**

If you would be like to take part in my research, or have any questions, please contact me at the details below. I look forward to hearing from you.

**Thank you.**

Researcher: Charlotte Martynoga

Contact: 07 838 4466 extn. 9307 / mob: 0279 316 616

Email: [crgm1@students.waikato.ac.nz](mailto:crgm1@students.waikato.ac.nz)

This research project has been approved by the Human Research Ethics Committee of the Faculty of Arts and Social Sciences. Any questions about the ethical conduct of this research may be sent to the Secretary of the Committee. Email: [fass-ethics@waikato.ac.nz](mailto:fass-ethics@waikato.ac.nz)  
Postal address: Faculty of Arts and Social Sciences, Te Kura Kete Aronui, The University of Waikato, Private Bag 3105, Hamilton 3240.

## **Appendix X**

### **Interview Questions for Local Residents**

#### ***Justice as recognition***

1. Have you discussed flooding issues with the Council?
  - If not, why did you not feel able to contribute to the Council's discussions?
  - If yes, do you consider that your involvement and discussions with Council have been worthwhile?
    - a) Were you listened to?
    - b) Were your views and local knowledge taken on board?
    - c) Did you receive feedback that explained the decisions that were taken?
2. Do you think that Councils adequately involve local people in local decisions for flood risk management?
  - If no, how could Councils improve their interaction with local people?

#### ***Procedural justice***

3. Do you think that the decisions on flood management have been fair for all residents? If yes why so, or if not why not?
4. Do you think that those residents that directly benefit from flood prevention works should pay greater rates?

#### ***Distributive justice***

5. Do you think that your area gets a fair share of resources for flood management? If yes why so, or if not why not?
6. Do you think that some groups of society are disproportionately represented in living in areas of flood risk? If so why is this?

#### ***Capabilities approach to justice***

7. How do you think Councils should recognise the different needs and abilities of people to cope with flooding?
  - For example, do you think some people in the community (such as the older and more vulnerable) need more assistance to cope and adapt to flood risk?
  - What do you think Council could do better – is it more information and advice or something else?
8. Do you feel that your community works well together in tackling flooding?
  - Are some people taking a lead role in the discussions with Council and the community?
  - How can greater participation be encouraged to improve community resilience?

## Appendix XI

**Environmental Planning**  
Faculty of Arts & Social Sciences  
*Te Kura Kete Aronui*  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

### Participant Consent Form for Interviews with Local Residents

*A completed copy of this form should be retained by both the researcher and the participant.*

**Description of project:** The aim of this research is to examine the environmental justice implications of how flood risk is managed within the New Zealand planning system.

**Name of person interviewed:** .....

I have received a copy of the Information Sheet describing the research project. Any questions that I have, relating to the research, have been answered to my satisfaction. I understand that I can ask further questions about the research at any time during my participation, and that I can withdraw my participation at any time up until one month after the interview.

During the interview, I understand that I do not have to answer questions unless I am happy to talk about the topic. I can stop the interview at any time, and I can ask to have the recording device turned off at any time.

When I sign this consent form, I will retain ownership of my interview, but I give consent for the researcher to use the interview for the purposes of the research outlined in the Information Sheet. I understand that my identity will remain confidential in the presentation of the research findings.

Please complete the following checklist. Tick [✓] the appropriate box for each point.	YES	NO
I wish to view the transcript of the interview.		
I wish to be given the interview recordings after the 5 year required storage period.		
I wish to receive a summary of the findings.		

Participant :	Researcher :	Charlotte Martynoga
Signature :	Signature :	
Date :	Date :	
Contact Details :	Contact Details :	07 838 4466 extn. 9307
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